STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: August 21, 2018

FROM: Matt Urban
Chief, Operations Management Section

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Ellsworth, 40874

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Highway Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(i). The project is located on NH Route Stinson Lake Road in the Town of Ellsworth, NH. The proposed work consists of drainage improvements and paving of a gravel roadway from the Sucker Brook Bridge, proceeding north, ending 400' north of the Three Ponds Trailhead parking lot.

This project was reviewed at the Natural Resource Agency Coordination Meeting on 11/15/2017. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm

Mitigation was discussed on 7/30/18. A summary from that meeting has been included within the application. It was determined that an Arm-Payment would not be required for this project.

The lead people to contact for this project are Jennifer Reczek, Bureau of Highway Design (271-2731 or Jennifer.Reczek@dot.nh.gov) or Matt Urban, Chief Operations Management Section, Bureau of Environment (271-3226 or matt.urban@dot.nh.gov).

A payment voucher has been processed for this application (Voucher #539879) in the amount of $3,014.80.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU:mru
Enclosures
cc:
BOE Original
Town of Ellsworth (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
Bureau of Construction
Carol Henderson, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Mark Kern, US Environmental Protection Agency (via electronic notification)
Michael Hicks, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)

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NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.
			Check No.
			Amount
			Initials

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month: 07 Day: 30 Year: 2018

☐ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **Stinson Lake Rd from Sucker Brook to 400' north of Three Ponds Trail**		TOWN/CITY: **Ellsworth NH**	
TAX MAP: **NA**	BLOCK: **NA**	LOT: **NA**	UNIT: **NA**
USGS TOPO MAP WATERBODY NAME: **USGS Mt. Kineo** ☐ NA		STREAM WATERSHED SIZE: ☒ NA	
LOCATION COORDINATES (If known): **43.88, -71.8** ☒ Latitude/Longitude ☐ UTM ☐ State			

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

This project on Stinson Lake Road in Ellsworth involves drainage improvements and paving along 2900' of existing gravel roadway, beginning at Sucker Brook bridge, proceeding north, and ending 400' north of theThree Ponds Trailhead parking access. Work includes slope flattening, culvert replacement, headwall or end section installation, stone lined or grass ditch construction, 175' of guardrail replacement, and paving.

5. SHORELINE FRONTAGE:

☒ NA This does not have shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☐ YES ☒ NO	_____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB 18 - 1267 .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and
date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____
☒ N/A

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **Reczek, Jennifer E.**

TRUST / COMPANY NAME: **Bureau of Highway Design** | MAILING ADDRESS: **7 Hazen Drive**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302-0483**

EMAIL or FAX: **Jennifer.Reczek@dot.nh.gov** | PHONE: **603-271-3401**

ELECTRONIC COMMUNICATION: By initialing here: **JER**, I hereby authorize NHDES to communicate all matters relative to this application electronically.

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.: **NH Department of Transportation**

TRUST / COMPANY NAME: **NH Department of Transportation** | MAILING ADDRESS: **7 Hazen Drive, PO Box 483**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302**

EMAIL or FAX: | PHONE:

ELECTRONIC COMMUNICATION: By initialing here JER, I hereby authorize NHDES to communicate all matters relative to this application electronically.

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: | COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY: | STATE: | ZIP CODE:

EMAIL or FAX: | PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
[signature]	Jennifer Reczek	8/13/2018

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland	7079	☐ ATF	3802	☐ ATF
Scrub-shrub wetland	227	☐ ATF	429	☐ ATF
Emergent wetland	8	☐ ATF	333	☐ ATF
Wet meadow	0	☐ ATF	0	☐ ATF
Intermittent stream	447 / 221	☐ ATF	0	☐ ATF
Perennial Stream / River	368 / 80	☐ ATF	465 / 49	☐ ATF
Lake / Pond	0 / 0	☐ ATF	0 / 0	☐ ATF
Bank - Intermittent stream	0 / 442	☐ ATF	0 / 0	☐ ATF
Bank - Perennial stream / River	1280 / 177	☐ ATF	636 / 102	☐ ATF
Bank - Lake / Pond	0 / 0	☐ ATF	0 / 0	☐ ATF
Tidal water	0 / 0	☐ ATF	0 / 0	☐ ATF
Salt marsh	0	☐ ATF	0	☐ ATF
Sand dune	0	☐ ATF	0	☐ ATF
Prime wetland	0	☐ ATF	0	☐ ATF
Prime wetland buffer	0	☐ ATF	0	☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)	0	☐ ATF	0	☐ ATF
Previously-developed upland in TBZ	0	☐ ATF	0	☐ ATF
Docking - Lake / Pond	0	☐ ATF	0	☐ ATF
Docking - River	0	☐ ATF	0	☐ ATF
Docking - Tidal Water	0	☐ ATF	0	☐ ATF
Vernal Pool	0	☐ ATF	0	☐ ATF
TOTAL	9409 / 920		5665 / 151	

15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) **15074** sq. ft. X $0.20 = **$ 3014.80**

Temporary (seasonal) docking structure: **0** sq. ft. X $1.00 = **$ 0**

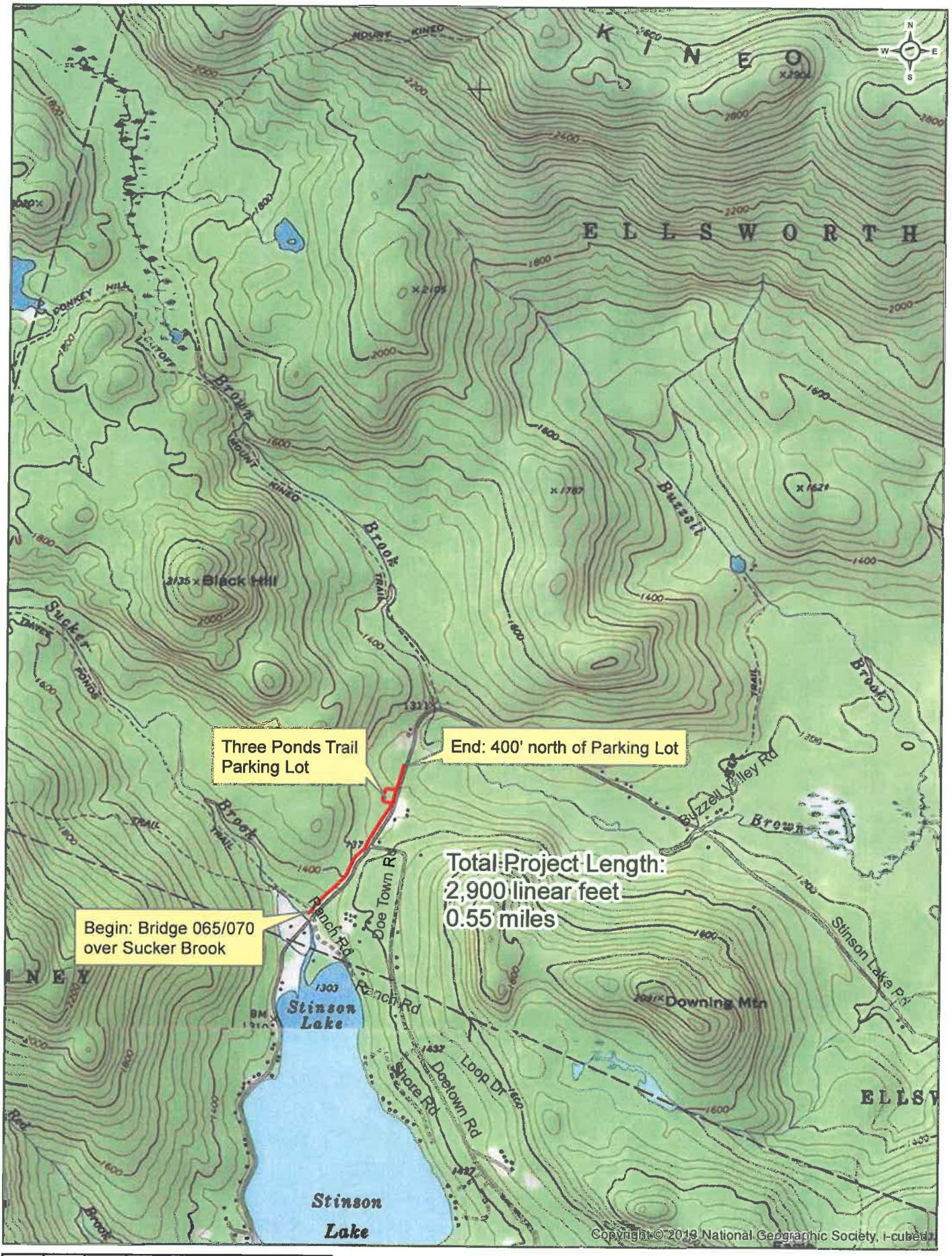
Permanent docking structure: **0** sq. ft. X $2.00 = **$ 0**

Projects proposing shoreline structures (including docks) add $200 = $ 0

Total = **$ 3014.80**

The Application Fee is the above calculated Total or $200, whichever is greater = **$ 3014.80**

NHDOT Ellsworth 40874



NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The project is located on Stinson Lake Road in the Town of Ellsworth. This low volume, gravel surfaced roadway is the only State maintained road in Ellsworth and functions to connect the Towns of Rumney and Campton via Tricothic Road. It also provides direct access to at least 2 White Mountain National Forest parcels, including the WMNF Three Ponds Trailhead parking lot, and numerous other private parcels.

The entire road is summer maintained by the State, but only the 4200' length between Sucker Brook bridge and an existing turnaround just north of Brown Brook bridge is winter maintained. While the Rumney portion of Stinson Lake Road is paved and maintained with a salt/gravel mixture, the gravel portion in Ellsworth must be maintained using sand only which requires dispatching a separate 'sand only' truck and driver.

Recent extreme storms in July 2017 and Oct 2017 resulted in road damage and subsequent repair by NHDOT District forces. This project is intended to install drainage improvements and pave an 18' wide travelway along 2500' of Stinson Lake Road, beginning at Sucker Brook bridge and ending 400' north of the Three Ponds trailhead parking lot, to provide improved year round access to the WMNF Three Ponds Trailhead parking lot, and reduce maintenance and repair needs. A second driveway on the south side of the Three Ponds Trailhead parking lot will be installed to create a loop turnaround for winter maintenance vehicles.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

The alternative proposed is the one with the least impacts, designed to reduce maintenance, improve stormwater runoff quality, and balance motorist safety with physical impacts to adjacent wetlands and streams.

1. Paving the gravel surface and constructing formalized ditches, stabilized with stone or grass, will trap and reduce sediment transport into adjacent forest & wetlands.

2. Removing trees and flattening existing steep cut slopes to more maintainable 2:1 slopes will reduce potential erosion from tree tip downs, encourage new vegetative re-growth, and eliminate the need to stone armor steeper slopes.

3. Fattening of steep fill slopes to accommodate longer culverts and eliminate embankments with rollover concerns, were held to 3:1 or 4:1 to balance wetland impacts with safety.

4. Upgrading drainage and providing adequately stable ditches and roadway side slopes will reduce the occurance of washouts during weather events and therefore reduce the continual erosion and sedimentation of the nearby waterways and wetlands, as well as reducing the need for emergency repairs.

3. The type and classification of the wetlands involved.

PF01E (Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded/Saturated)

PEM1E (Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated)

PEM1F (Palustrine, Emergent, Persistent, Semi-Permanently Flooded) - present in project area but not impacted by proposed work

PSS1E (Palustrine, Scrub-shrub, Broad-leaved Deciduous, Seasonally Flooded/Saturated)

R3UB1 (Riverine, Upper Perennial, Unconsolidated Bottom, Cobble-Gravel)

R4SB3,4 (Riverine, Intermittent, Streambed, Cobble-Gravel, Sand)

R4SB6 (Riverine, Intermittent, Streambed, Organic) - present in project area but not impacted by proposed work

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

Wetlands south of Doetown Road generally drain south towards Sucker Brook which drains into Stinson Lake, while wetlands north of Doetown Road make their way towards Brown Brook which eventually drains into Ellsworth Pond. Impacts necessary for the project are intended to aid in stabilization efforts that will reduce erosion and sedimentation of these waterbodies.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

The wetland and stream types present in the project area are not considered rare in the State of New Hampshire. This project will have no known impact on prime wetlands, rare wetlands, or surface waters, and is not located or adjacent to sand dunes or tidal buffer areas.

6. The surface area of the wetlands that will be impacted.

The proposed work will impact a total of 15,074 s.f., including 9,409 s.f. of permanent impact and 5,665 s.f. of temporary impact. These impacts occur in Wetland Areas (jurisdiction of NHDES Wetlands Bureau and USACOE), including Stream and Delineated Wetlands, as well as in Bank Areas (jurisdiction of NHDES Wetlands Bureau only). Impact totals in these categories are as follows:

Wetland Areas Impacts:

-Delineated Wetlands: 7,314 s.f. permanent and 4,564 s.f. temporary

-Streams: 815 s.f. permanent and 465 s.f. temporary

Bank Area Impacts:

-Bank: 1,280 s.f. permanent and 636 s.f. temporary

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

The proposed project has been reviewed by the NH Natural Herigage Bureau (NHNHB) and the US Fish and Wildlife Service and is not anticipated to negatively impact any state or federally protected species or their habitats, including the following:

a. No rare species or species of special concern located within the project area have been identified within the project area.

b. The project area is located within the range of the federally threatened northern long-eared bat (NLEB), however, there are no known roost or hibernacula sites in the vicinity of the project area and consultation with the USFWS has been completed through the Programmatic Biological Opinion for Transportation Projects. The work has given a "May Affect, Likely to Adversely Affect" finding due to the need to clear trees during the NLEB active season, however, all necessary avoidance and minimization measures will be utilized during construction to minimize impacts to the species. This work is not anticipated to cause jeopardy to NLEB.

c. No species at the extremities of their ranges have been identified within the project area.

d. There are no anticipated impacts to migratory fish or wildlife.

e. NHNHB does not have records of any exemplary natural communities within the project area.

f. No vernal pools have been identified within the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

This project will have no negative impact on public commerce or navigation. Access to the recreational value associated with the WMNF Three Ponds Trail will be improved due to the stablization and paving of the roadway.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

While this is a low volume road with limited seasonal residents, it provides access to 2 White Mountain Nation Forest parcels and parking for Three Ponds trailhead. In general, flattening of steep slopes and addition of ditches will result in tree and earth removal which will open the existing tree canopy. Impacted slopes will be stabilized and humus and seed will be applied which will provide opportunity for re-establishment of local native plant species and long term forest succession.

Stone ditchlines are proposed at multiple locations. Stone is required to mitigate potential erosion from steep roadway grades and anticipated storm water volumes.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The work will not obstruct public passage as there are no navigable waters within the project area.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

Where work abuts or impacts a stream or brook, work shall adhere to the project's Environmental agreements and permits, including use of the appropriate BMP's to minimize sediment transport or erosion to adjacent waters or private property. The proposed work will provide longterm benefits to the downstream properties due to the decrease in erosion and sedimentation of the local waterways which has been caused by continuous washouts and application of gravel to maintain the existing condition of the gravel roadway.

12. The benefit of a project to the health, safety, and well being of the general public.

This area has been damaged by several recent storms requiring District repairs which have caused damage to the road and adjacent private properties. The proposed work will increase the health, safety and well-being of the general public by stabilizing the road and installing adequate draiange systems which will result in drainage being appropriately sized to minimize future storm damage, reduce maintenance, and reduce sediment transport into adjacent wetlands, streams and brooks.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

With use of appropriate BMP's and erosion control during construction, this project will have minimal impacts on quantity or quality of surface water. Once ditches are completed and stabilized, stormwater quality will improve as these new facilities will function to filter and trap smaller sediment running off the existing gravel road surface.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

Erosion and sedimentation will be reduced as a result of this project, and should reduce flood damage as a result of increased drainage capacity.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

This project will not result in reflecting or redirecting wave energy in any surface waters.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

There are 7 parcels along the length of the project, varying between 2 and 57 acres. Due to the size of the impacts and the limited adjoining abutters, the cumulative impact of allowing proportional permitted alterations would have negligible affect on the impacted wetlands. Additionally, due to the unique responsibility of the Department to maintain safe roadways with functional drainage systems, it is unlikely that abutters would propose similar impacts.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

It is not anticipated that this project will result in impacts on the value or functions of the total wetland complex.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

This project does not impact any of the 11 NH sites listed on the National Register of Natural Landmarks.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

This project will improve access to the White Mountain National Forest Three Ponds trailhead parking lot.

20. The degree to which a project redirects water from one watershed to another.

This project will not redirect any water from the existing watersheds.

Additional comments

Stinson Lake Road is the only state maintained road in the Town of Ellsworth. It is an un-numbered, Tier 4 roadway that is ineligible for Federal improvement funds and as such, improvements are being funded by FLAP (Forest Lands Access Program). Paving the existing gravel surfaced roadway and providing formal, stabilized drainage ditches should reduce sediment transport into adjacent wetland, brooks, and woodland, reduce District maintenance and repair needs, and improve access to the WMNF Three Ponds trailhead parking lot.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: November 15, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Mark Hemmerlein
Marc Laurin
Don Lyford
Bill Saffian
David Scott
Meli Dube
John Sargent
Jennifer Reczek
Kathy Corliss
Matt Healey
Kevin Daigle

ACOE
Mike Hicks

EPA
Mark Kern

NHDES
Gino Infascelli
Lori Sommer

NHF&G
Carol Henderson
John Magee

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
Christine Perron

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

M. Hicks inquired about the status of Section 106 review. M. Dube provided an update on the NEPA review, including Section 106. The project area is adjacent to the Alstead Village Historic District in the southwest quadrant, however we are not intending to impact the District and an Individual Inventory of the bridge confirmed that it is not included in the District and is not individually eligible for listing on the National Register for Historic Places so the project has been found to have no effect on historic properties by FHWA and NHDHR. Coordination with the Office of Strategic Initiatives regarding flood resources is ongoing, however, it is anticipated that the proposed design will have a positive impact on flood capacity due to the increased opening. There are no conservation lands in the vicinity of the project area. Japanese knotweed is the only invasive species, and it is common throughout the project. Appropriate BMPs will be employed during construction. Options for permanent stormwater treatment are being reviewed to treat as much of the additional runoff as possible from the proposed approximately 1000 square feet of increased impervious surface. Amy Lamb, NHNHB, confirmed that there are no known records of protected species or habitats in the project area. M. Dube stated that the project has been reviewed by the US Fish and Wildlife Service (USFWS) and is located in the range of the northern long-eared bat (NLEB). Because this project is designed to be constructed in one season, all bridge work and minor tree clearing will occur during the NLEB active season. This project meets the requirements of the FHWA/USFWS Programmatic Biological Opinion and consultation has been initiated with a May Affect, Likely to Adversely Affect finding due to the work during the active season.

This project has been previously discussed at the 1/21/2015 Monthly Natural Resource Agency Coordination Meeting.

Ellsworth, #40874 (X-A004(514))

Matt Healey, NHDOT Highway Design, provided an overview of the project area and scope, which involves paving the existing gravel travel way on Stinson Lake Road in Ellsworth. The project area begins just north of the bridge over Sucker Brook near the intersection of Ranch Road and extends northerly approximately 4200 ft, ending just past the existing turnaround north of Brown Brook bridge . This project is funded through the FHWA Federal Lands Access Program (FLAP) and was originally initiated by NHDOT Maintenance District 2. The existing gravel roadway has steep side slopes and deteriorated or undersized drainage structures in many locations and is susceptible to washouts and erosion during storm events. Additionally, this segment of Stinson Lake Road is maintained by NHDOT Maintenance crews during the winter, but the gravel segment requires a separate truck for the application of sand instead of salt which is applied on the paved roadway to the south of the project. The intent of the project is to pave the road to make winter maintenance easier and upgrade the drainage structures, ditch lines, embankment slopes and guardrail to make the roadway more stable, reduce erosion and sedimentation of nearby wetland systems, and increase safety and accessibility for the traveling public. The proposed design includes an 18' wide paved roadway with intersecting roadway and driveway tie-ins, 1' gravel shoulders, construction and stabilization of ditch lines, slope flattening and stabilization with rip-rap, replacement and upsizing of culverts where necessary, and replacement and extension of guardrail at the northern end of the project.

Meli Dube, NHDOT Bureau of Environment, provided an update on the NEPA review. The project area passes through the White Mountain National Forest at two locations, both of which have

existing 200' wide easements. These locations include the Three Ponds Trail Head in the middle of the project area and also the area near the Mt. Kineo Trail and Brown Brook at the northern end of the project. Coordination with US Forest Service is ongoing. Review by NHNHB indicated potential presence of two species on the State watch list, and one species that is State and Federally Threatened; none were found during a site survey and no further coordination is necessary. The USFWS IPAC tool indicated that the project is located in the range of the northern long-eared bat (NLEB). This project meets requirements for the FHWA/USFWS Programmatic Biological Opinion and the project is under consultation with a May Affect, Likely to Adversely Affect finding due to tree clearing during the active season in order to accommodate a one season construction schedule. There are several wetland systems adjacent to Stinson Lake Road throughout the project area including emergent and forested wetlands, as well as intermittent and perennial streams. There are no anticipated impacts to Sucker Brook or Brown Brook at each end of the project area.

M. Healey detailed the proposed work which will impact wetlands and the initial estimates for impact quantities. There are five major wetland impact areas including both forested and emergent classifications. The majority of the work in these areas involves slope work, shoulder leveling, culvert replacement and stabilization. There are three stream impact areas, including two intermittent streams and one perennial stream. The first stream impact involves an intermittent stream that connects two jurisdictional wetlands and flows through the existing ditch line, which is currently very shallow and is located extremely close to the driving surface within the roadway shoulder in some locations. This stream crosses under the entrance to Doetown Road. The proposed work involves formalizing and shifting the ditch over immediately adjacent to its current location with the intent to keep the stream flowing through the new ditch line. The culvert under Doetown Road will be replaced. The second stream impact area is located at Station 128+00 just north of the Three Ponds Trail Head and involves a perennial stream flowing under Stinson Lake Road through a 48" RCP. This pipe is proposed to be replaced, possibly upsized, as it is currently undersized and appears to be made up of segments which are not securely connected. This location sees frequent erosion during rain events and has existing scoured areas in need of repair. The third stream impact area involves an intermittent stream near the northern end of the project area that flows through a 15" CMP and outlets to the south of the roadway onto a very steep drop off which extends approximately 16 feet before stabilizing and returning to a normal stream channel. Treatment options include replacing the existing crosspipe and installing either a manhole with sump to drop the water down away from the road to a stone lined slope or install an "elephant trunk" end section which would extend 16' down the slope and outlet into the stabilized part of the stream.

M. Dube discussed the need for mitigation for the impacts detailed above. Estimated permanent wetland impacts total 6,220 square feet, which is less than the 10,000 square foot threshold at which mitigation is required. Lori Sommer, NHDES Wetlands Bureau, agreed that no mitigation would be necessary for the wetland impact areas. For stream impact area 1, as described above, L. Sommer agreed that each corresponding foot of ditch line relocation could be considered self-mitigating. Stream impact area 2, as described above, would meet the requirements for the Routine Roadway and Railway Maintenance Notification (RRMN) if replaced in-kind with another 48" pipe and therefore be exempt from mitigation. However, upsizing the a 60' pipe would meet stream crossing rules for Tier 1 streams and L. Sommer agreed that no mitigation would be

required for compliant structures. Stream impact area 3 also meets requirements for the RRMN if only the pipe is replaced, however, L. Sommer agreed that the severe dropoff and erosion should be considered in this repair and extending the outlet down the slope to a point where the water can be outletted safely would not require mitigation.

Mike Hicks, USACOE, warned that there may be many good NLEB roost trees in the vicinity of the project area and recommends checking with the USFS. M. Dube noted this and replied that there are currently no known roost trees.

L. Sommer indicated that she would like an opportunity to review more developed plans and x-sections for the project, including those of the channel / ditch work in the vicinity of Doe Town Rd, prior to wetland application submission to verify the mitigation agreements discussed above .

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Conway, #11339 - Mitigation
No minutes have been submitted to date.

Discussion involved needing more information on how much of the project was constructed, how much of the permitted wetland impacts were actually impacted, and more details and a breakdown of the mitigation parcels purchased were needed to come up with a determination.

This project has been previously discussed at the 3/23/1995, 1/17/2001, 9/19/2001, 5/15/2002, 3/18/2004, 11/15/2006, 1/21/2009, 2/18/2009, 3/18/2009 Monthly Natural Resource Agency Coordination Meetings.

NHDOT Ellsworth 40874
NHDES Wetlands Bureau Standard Dredge and Fill Application
Mitigation Discussion

The proposed project was discussed at the November 15, 2017 Natural Resource Agency meeting. The proposed work will result in permanent impacts to forested, scrub shrub and emergent wetlands as well as bank and channel of one intermittent and two perennial streams along Stinson Lake Road in the Town of Ellsworth. The permanent impact to jurisdictional delineated wetlands, including the forested, scrub shrub and emergent wetlands, will be 7,314 square feet, which is less than the 10,000 square foot threshold and will therefore not require mitigation. Impacts to two perennial and one intermittent stream are for the preservation and maintenance of existing infrastructure or are otherwise self-mitigating and therefore also do not require mitigation.

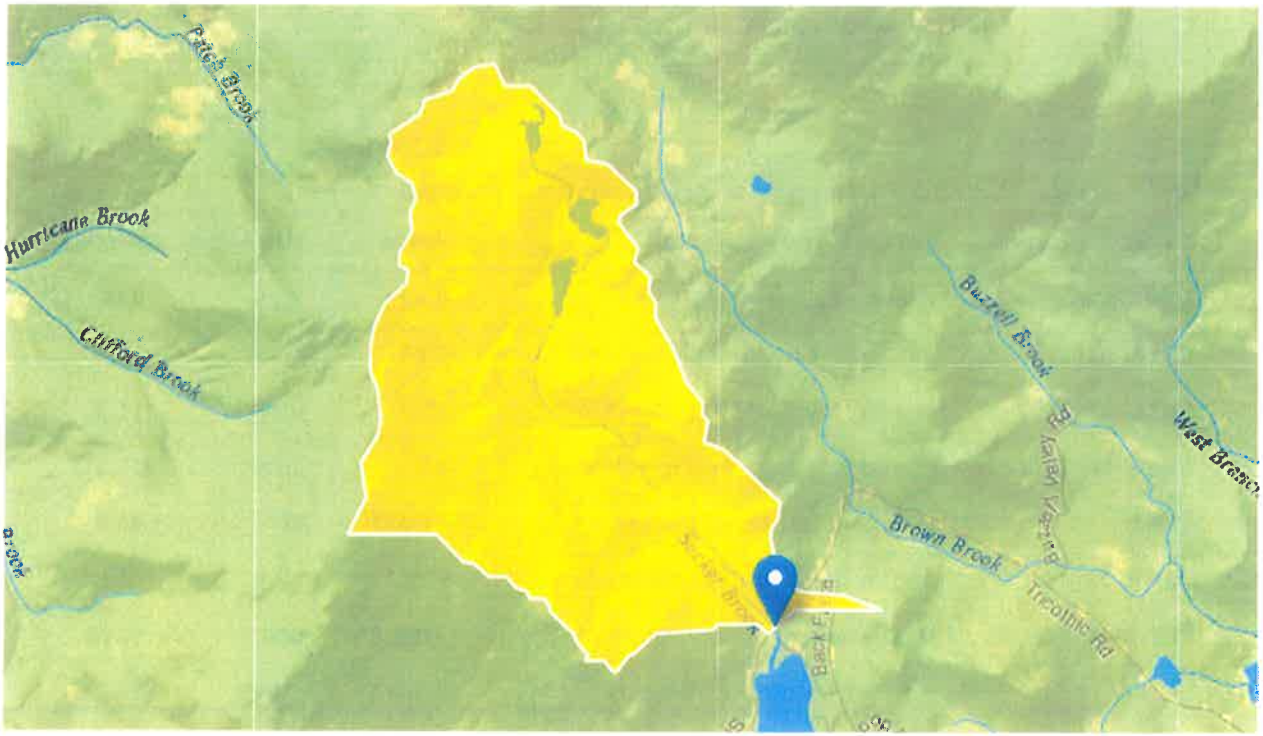
Approaches for calculating mitigation for the intermittent stream and for one of the perennial streams were discussed at the November 15 meeting. The intermittent stream is currently located in an existing ditch line immediately adjacent to the gravel travel way. The proposed work will relocate the ditch to a location immediately adjacent to the existing location and stabilize the channel to reduce erosion and sedimentation from the roadway. It was agreed that every foot of relocation to an improved and stable ditch would be considered self-mitigating. The perennial stream is a Tier 1 stream located just north of the Three Ponds Trailhead parking lot and flows west to east through a deteriorated 48" RCP. At the November 15 meeting, it was agreed that no mitigation would be necessary if the proposed work meets Routine Roadway and Railway Maintenance requirements.

A follow-up meeting attended by Matt Urban, Gino Infascelli and Lori Sommer occurred on July 30, 2018. At that meeting, the following agreements were made:

1. The entire length of the intermittent stream will be relocated to an improved and stable ditchline immediately adjacent to the existing location and mitigation will not be required as this is considered self-mitigating.
2. The proposed work on the Tier 1 stream will involve replacing the existing 48" RCP with a 48" plastic pipe and will meet all requirements of the Routine Roadway and Railway Maintenance permit-by-notification. Lori Sommer inquired about the existing and proposed invert elevations, and Bureau of Environment provided photo documentation that the existing condition is not perched and the proposed work will not create a perched condition. In accordance with the previous agreed approach, no mitigation will be necessary for this work.
3. A third stream impact location was discussed at the July 30, 2018 meeting which was not included in the November 15, 2017 Natural Resource Agency Meeting. The proposed project will require impacts to the bank and channel of Sucker Brook at the southern limit of the project area for the purpose of replacing a 12" CMP which carries stormwater runoff under Ranch Road and outlets on the bank of Sucker Brook. All work will occur in areas of existing rip-rap and is considered maintenance of existing infrastructure and will therefore not require mitigation.

Ellsworth 40874

Region ID:
NH
Workspace ID:
NH20170126121943760000
Clicked Point (Latitude, Longitude):
43.87991, -71.80125
Time:
2017-01-26 14:20:23 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.42	square miles
BSLDEM30M	Mean basin slope computed from 30 m DEM	24.545	percent
ELEVMAX	Maximum basin elevation	3403.834	feet
TEMP	Mean Annual Temperature	42.023	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	58.17	degrees F
CONIF	Percentaqe of land surface covered by coniferous forest	9.7846	percent

2188.8 acres

Ellsworth 40874 2

Region ID:
NH
Workspace ID:
NH20170126122415322000
Clicked Point (Latitude, Longitude):
43.88631, -71.79544
Time:
2017-01-26 14:24:52 -0500

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit	
DRNAREA	Area that drains to a point on a stream	0.06	square miles	38.4 acres
BSLDEM30M	Mean basin slope computed from 30 m DEM	14.211	percent	
ELEVMAX	Maximum basin elevation	1556.772	feet	

NH Department of Transportation
Bureau of Highway Design
Project, 40874

Env-Wt 904.07 In-Kind Replacement of Tier 1 or Tier 2 Existing Legal Crossings

- In order to qualify under this section, the crossing cannot have a history of causing or contributing to flooding that damages the crossing or other infrastructure. Does the crossing have a history of flooding? No, the crossing does not have a history of flooding

- The replacement stream crossing shall be the same size and type as the existing OR an upgrade. Please describe how this applies to the subject project. The existing disjointed pipe is a 48" RCP with a 3.3% slope; it is proposed to be replaced with a 48" doubled walled plastic pipe with a 3.1% slope.

If the above criteria do not apply to this project, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

If the above criteria apply to this project, please provide the following information.

The project may qualify as a **minimum** impact project if:

The crossing does not diminish the hydraulic capacity of the crossing. The proposed 48" culvert is the same size as existing and will not diminish hydraulic capacity.

The crossing does not diminish the capacity of the crossing to accommodate aquatic life passage. The proposed pipe is at a slightly flatter 3.1% grade than the existing one at 3.3% grade. The plastic material while slightly smoother should not diminish the AOP capacity.

The crossing meets the general design criteria specified in Env-Wt 904.01, as follows:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;
The existing pipe joints have pulled apart which allow surrounding fill to enter the pipe and larger debris to catch or hang up on the failed joints. The new culvert will prevent these issues and allow improved sediment transport.

(b) Prevent the restriction of high flows and maintain existing low flows;
The proposed culvert should improve flow as a result of a new inlet headwall. Low flows should improve since water will no longer leak through the failed joints into the surrounding pipe fill.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
The replacement culvert will not substantially disrupt movement of indigenous aquatic life.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;
There is no record of flooding at this location and the propose culvert being of the same size as existing will not increase the potential for flooding or overtopping.

(e) Preserve watercourse connectivity where it currently exists;
The replacement will provide the same connectivity as currently exists.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

Connectivity has not been majorly disrupted at this crossing, however, replacing the broken pipe and therefore removing the potential for debris to build up inside should increase ease of passage through the pipe.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and
The replacement will not result in increased erosion upstream or downstream. Stone will be added at the inlet and outlet to stabilize the channel and banks

(h) Not cause water quality degradation.
The replacement culvert and stone channel lining should improve water quality by trapping sediment and not permitting surround pipe fill to seep through failed joints and into the water carried by the pipe.

If the project does not qualify as a minimum impact project due to reasons stated above, it may qualify as a **minor** impact project if:

The crossing does not adversely impact the stability of the stream banks or stream bed upstream or downstream of the crossing. The project will improve stream bank stability as a result of proposed stone lining.

The crossing does not cause an increase in the frequency of flooding or overtopping of banks. There is no record of flooding at this location and the propose culvert being of the same size as existing will not increase the potential for flooding or overtopping.

If the project does not meet the above criteria for minimum OR minor, the crossing does not qualify under this section and must be designed according to 904.02 (Tier 1 crossings) or 904.05 (Tier 2 crossings).

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Melilotus Dube, New Hampshire Department of Transportation
7 Hazen Drive
Concord, NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 5/1/2018 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB18-1267 Town: Ellsworth Location: Stinson Lake Road from the intersection of Range Road northerly approximately 1 miles to just north-east of Brown Brook

Description: NHDOT Ellsworth 40874. The proposed project was previously reviewed under NHB17-0294 and subsequent email correspondence. Since the original review, the proposed scope has changed to eliminate all paving and the project area has extended an extra 150' at the northern terminus. The proposed work includes upgrading and/or repairing structurally deficient drainage structures, widening and securing roadway embankments, repairing or formalizing ditch lines, clearing trees along the roadway to allow for the ditch work, replacing guardrail near Brown Brook and reconstructing and shifting the existing gravel turn-around at the northern end of the project to a T-shaped turnaround located a few feet north of its current location.

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: The previous NHB review for the project, NHB17-0294, included two additional State Watch species, Goldie's fern (*Dryopteris goldiana*) and squirrel corn (*Dicentra canadensis*); these species are no longer included in review memos because they are not listed species. All three species were documented a minimum of 150 m from the roadway, so provided that the additional work does not extend more than a few feet into the woods, impacts to these species are not anticipated. Please contact NHB if any rare plant species are documented in the project area.

Plant species	State[1]	Federal	Notes
Sensitive species	T	--	Please contact NH Natural Heritage (271-2215 x 323) if project impacts could occur in the area shown on the map.

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

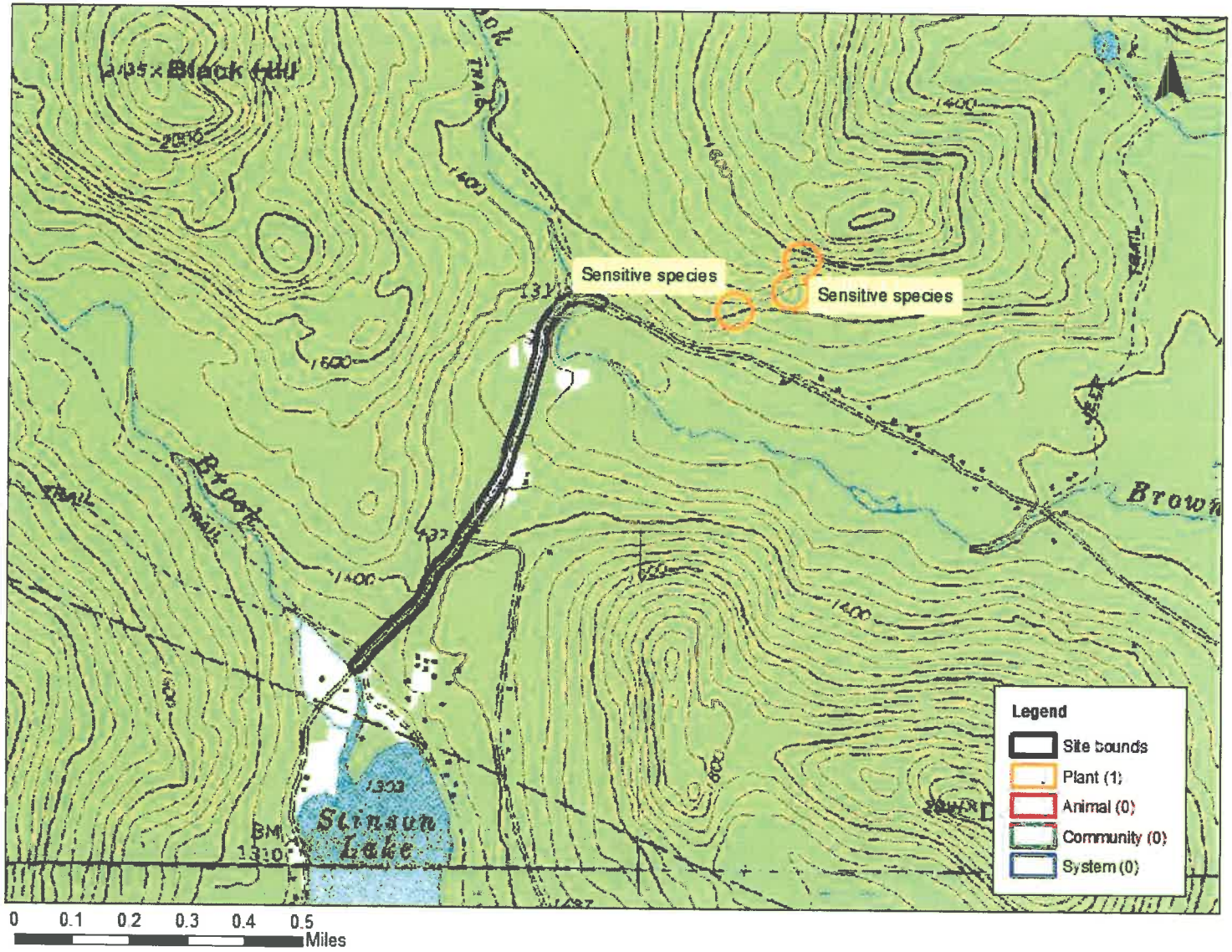
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB18-1267



EOCODE:

Legal Status

Federal:
State:

Conservation Status

Global:
State:

Description at this Location

Conservation Rank:
Comments on Rank:

Detailed Description:
General Area:
General Comments:
Management
Comments:

Location

Survey Site Name:
Managed By:

County:
Town(s):
Size:

Elevation:

Precision:

Directions:

Dates documented

First reported:

Last reported:

CONFIDENTIAL – NH Dept. of Environmental Services review

Dube, Melilotus

From: Lamb, Amy
Sent: Thursday, July 19, 2018 7:59 AM
To: Dube, Melilotus
Subject: RE: NEW ELLSWORTH 40874 REVIEW NHB18-1267

Hi Meli,
I don't have any concerns about the change in scope or the addition of the second driveway connecting the parking lot to the road. Thanks for checking in,
Amy

Sent with BlackBerry Work
(www.blackberry.com)

From: Dube, Melilotus <Melilotus.Dube@dot.nh.gov>
Date: Wednesday, Jul 18, 2018, 11:28 AM
To: Lamb, Amy <Amy.Lamb@dncr.nh.gov>
Subject: RE: NEW ELLSWORTH 40874 REVIEW NHB18-1267

Hi Amy,
I am emailing to notify you of yet another change in scope for this project. I have no submitted another review request on the NHB DataCheck tool because it's still basically within the project area that you have previously reviewed. If you think I should submit, let me know!
The quick summary of the changes:

1. Paving is back in the scope
2. Project area is being shortened to eliminate the entire northern section near Brown Brook. The work will now extend from Sucker Brook northerly 2,900 feet (0.55 miles)
3. Creation of a second driveway on the south side of the Three Ponds Trail parking lot to create a loop for plow trucks to use to turnaround.

The scope is essentially now back to the original proposal discussed at the Natural Resource Agency Meeting in November, 2017 (minutes attached) including paving, slope work/shoulder leveling and construction, clearing, and drainage/ditch repair and upgrades but just for a shorter distance than originally proposed so some of the major drainage work and all the guardrail work has been dropped. The major addition that you haven't seen before is the creation of a turnaround for the plow trucks using the existing Three Ponds Trail parking lot, including the installation of the second driveway connecting the south side of the parking lot to Stinson Lake Road approximately 200' south of the current driveway.
I checked the maps and memos that you had sent for NHB18-1267 and NHB17-0294 and do not see any potential resources in the immediate area of the turnaround, which is really the only aspect of the work that hasn't been discussed and reviewed before. Do you have any potential concerns for this change in scope? Would you like me to submit a new review online or is the NHB18-1267 memo sufficient?
I'm attaching new maps with the updated project limits.
Meli

From: Lamb, Amy
Sent: Wednesday, April 25, 2018 12:03 PM
To: Dube, Melilotus
Subject: RE: NEW ELLSWORTH 40874 REVIEW NHB18-1267 SHPFILE
Thanks Meli! I appreciate the update and that you followed up on the previous email chain – very helpful. We just finished a "batch" of reviews but we will do this one by early next week.

Amy Lamb
Ecological Information Specialist
(603) 271-2834
amy.lamb@dncr.nh.gov

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Dube, Melilotus
Sent: Wednesday, April 25, 2018 12:00 PM
To: Lamb, Amy
Subject: NEW ELLSWORTH 40874 REVIEW NHB18-1267 SHPFILE
Hi Amy,
The previous NHB review for this project is out of date. We have also had a change in scope. Basically, we have removed paving from the scope entirely but we will be keeping all of the drainage work discussed in the previous review and at the Natural Resource Agency Meeting. We also extended the project 150' at the northern terminus to capture another ditch line and 12" cross culver that needs to be replaced in order to really address the drainage issues.
I'm attaching the shapefile with the extended bit on it for you.
Thanks!
Meli

From: Lamb, Amy
Sent: Monday, August 28, 2017 2:42 PM
To: Dube, Melilotus
Subject: RE: NHB review: NHB17-0294
Hi Meli,
Thanks for looking for the plants and following up. No further concerns for NHB.
Amy
Amy Lamb
Ecological Information Specialist
(603) 271-2215 ext. 323

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

Please note that the Department of Resources and Economic Development (DRED) has been reorganized into two new agencies, the Department of Natural and Cultural Resources (**DNCR**), and the Department of Business and Economic Affairs (DBEA).

As of July 1, 2017, NHB is part of **DNCR**. Our physical location remains unchanged.

From: Dube, Melilotus
Sent: Monday, August 28, 2017 2:35 PM
To: Lamb, Amy
Subject: RE: NHB review: NHB17-0294
Amy,

I just wanted to follow-up on this correspondence and let you know that we did not find Goldie's Fern or Squirrel Corn at the project site when we did our wetland and invasive species delineations.
☺
Meli

From: Dube, Melilotus
Sent: Tuesday, March 07, 2017 9:56 AM
To: Lamb, Amy
Subject: RE: NHB review: NHB17-0294
Amy,
We will keep an eye out for these species when we are up there doing our site visit. We have a few extra "potential" invasive species that the Forest Service asked us to look for as well so I'll just add them to the list. If I find these species, I'll let you know. At this point, however, I'm going to include this correspondence in the project file and proceed with the NEPA document as though are no concerns. Sound good?
Meli

From: Lamb, Amy
Sent: Tuesday, March 07, 2017 9:44 AM
To: Dube, Melilotus
Subject: RE: NHB review: NHB17-0294
Hi Meli,
Two of the species listed in the review (NHB17-0294) are state watch species, and are not listed as threatened or endangered in NH. These species are Goldie's Fern (*Dryopteris goldiana*) and Squirrel Corn (*Dicentra canadensis*)
Since they are not listed, this means that they are not subject to regulatory oversight.
https://gobotany.newenglandwild.org/species/dicentra/canadensis/
https://gobotany.newenglandwild.org/species/dryopteris/goldiana/
If you see either of these plants within the project area, we would prefer avoidance if possible, but this would be a voluntary measure since state watch species are not regulated.
As for the other plant, the 'sensitive species' – I would not expect to see this plant along the roadside, especially since the topography appears to be fairly level, based on the topo map. The 'sensitive species' is American ginseng (*Panax quinqefolius*), so if you find this in the project area, please contact NHB.
Amy
Amy Lamb
Ecological Information Specialist
(603) 271-2215 ext. 323

NH Natural Heritage Bureau
DRED - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Dube, Melilotus
Sent: Monday, March 06, 2017 9:05 AM
To: Lamb, Amy
Subject: RE: NHB review: NHB17-0294
Amy,
Thank you for the review! I have looked through the species, descriptions and maps that you provided. We will definitely not be impacting any area beyond the original project description so our impacts (pavement application and ditching with associated clearing) will not extend into areas adjacent to the known records. Is there any particular follow-up that you would recommend for this project?
Meli

From: Lamb, Amy
Sent: Wednesday, March 01, 2017 4:10 PM
To: Dube, Melilotus
Subject: NHB review: NHB17-0294

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,
Amy

Amy Lamb
Ecological Information Specialist

NH Natural Heritage Bureau
DRED - Forest & Lands
172 Pembroke Rd
Concord, NH 03301
603-271-2215 ext. 323

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2017-SLI-0718
Event Code: 05E1NE00-2018-E-00380
Project Name: Ellsworth 40874

October 17, 2017

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-0718

Event Code: 05E1NE00-2018-E-00380

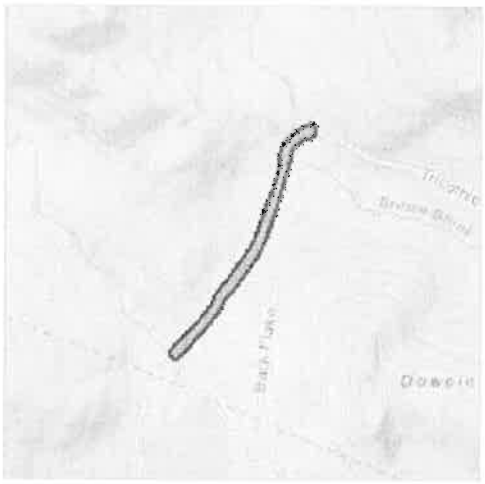
Project Name: Ellsworth 40874

Project Type: TRANSPORTATION

Project Description: Improvements to Stinson Lake Road including paving over the existing gravel travel way, guardrail installation, slope widening and tree clearing.

Project Location:

Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/43.88474164641559N71.79622989863313W



Counties: Grafton, NH

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

IPaC Record Locator: 283-10013808

October 26, 2017

Subject: Consistency letter for the 'Ellsworth 40874' project under the December 15, 2016 FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the **Ellsworth 40874** (Proposed Action) may rely on the December 15, 2016 FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*). Based on the information you provided (Project Description repeated below), you have determined that the Proposed Action is within the scope, and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and is likely to adversely affect the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required.

A "likely to adversely affect" determination requires the lead Federal action agency to request formal consultation with the Service. Therefore, please provide this consistency letter to the lead Federal action agency or its designated non-federal representative with a request for its review, and as the agency deems appropriate, transmit to this Office for verification.

This Service Office will respond by letter to the requesting Federal action agency or designated non-federal representative within 30 calendar days to:

- verify that the Proposed Action is consistent with the scope of actions covered under the PBO;
- verify that all applicable avoidance, minimization, and compensation measures are included in the action proposal;
- identify any action-specific monitoring and reporting requirements, consistent with the monitoring and reporting requirements of the PBO, and

- identify anticipated incidental take.

ESA Section 7 compliance for this Proposed Action is not complete until the Federal action agency or its designated non-federal representative receives a verification letter from the Service.

If the Proposed Action may affect any other federally-listed or proposed species or designated critical habitat, additional consultation between the lead Federal action agency and this Office is required. Please advise the lead Federal action agency for the Proposed Action accordingly.

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

Ellsworth 40874

Description

Improvements to Stinson Lake Road including paving over the existing gravel travel way, guardrail installation, slope widening and tree clearing.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

November 8, 2017

Melilotus Dube
Bureau of Environment
NH Department of Transportation
7 Hazen Drive
P.O. Box 483
Concord, New Hampshire 03302-0483

Dear Ms. Dube:

Re: Stinson Lake Road, Ellsworth, New Hampshire: Project 40874
TAILS: 05E1NE00-2017-F-0718

The U.S. Fish and Wildlife Service (Service) is responding to your request, dated October 27, 2017, to verify that the Stinson Lake Road Project (Project), in Ellsworth, New Hampshire may rely on the December 15, 2016, Programmatic Biological Opinion (BO) for federally funded or approved transportation projects that may affect the northern long-eared bat (*Myotis septentrionalis*) (NLEB). We received your request and the associated Project Submittal Form on October 30, 2017.

This letter provides the Service's response as to whether the Project may rely on the BO to comply with section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531, *et seq.*) for its effects to the NLEB.

The New Hampshire Department of Transportation (NHDOT), as the non-Federal agency representative for the Federal Transportation Agency, has determined that the Project may affect, and is likely to adversely affect the NLEB. The Project consists of paving approximately 1 mile of an existing 18-foot gravel travel way on Stinson Lake Road. Additional activities include grading, drainage ditch maintenance and improvements, drainage repairs (small culvert replacements) and guardrail extension and replacement at the northern terminus of the Project. Approximately 2 acres of tree clearing will be required for the Project and will likely occur during the bat active season. NHDOT also determined the Project may rely on the programmatic BO to comply with section 7(a)(2) of the ESA, because the Project meets the conditions outlined in the BO and all tree clearing related to the proposed bridgework will occur farther than 0.25 mile from documented roosts and farther than 0.5 mile from any known hibernacula. The Service

reviewed the Project Submittal Form and concurs with NHDOT's determination. This concurrence concludes your ESA section 7 responsibilities relative to this species for this Project, subject to the Reinitiation Notice below.

Conclusion

The Service has reviewed the effects of the proposed Project, which include the NHDOT's commitment to implement the impact avoidance, minimization, and compensation measures as indicated on the Project Submittal Form. We confirm that the proposed Project's effects are consistent with those analyzed in the BO. The Service has determined that the Project is consistent with the BO's conservation measures, and the scope of the program analyzed in the BO is not likely to jeopardize the continued existence of the NLEB. In coordination with your agency, the Federal Highway Administration, and the other sponsoring Federal Transportation Agencies, the Service will reevaluate this conclusion annually in light of any new pertinent information under the adaptive management provisions of the BO.

Incidental Take of the Northern Long-eared Bat

The Service anticipates that tree removal associated with the proposed Project will cause incidental take of the NLEB. However, the Project is consistent with the BO, and such projects will not cause take of NLEBs that is prohibited under the final 4(d) rule for this species (50 CFR §17.40(o)). Therefore, this taking does not require exemption from the Service.

Reporting Dead or Injured Bats

The NHDOT, the Federal Highway Administration, its State/local cooperators, and any contractors must take care when handling dead or injured NLEBs that are found at the project site, in order to preserve biological material in the best possible condition and to protect the handler from exposure to diseases, such as rabies. Project personnel are responsible for ensuring that any evidence about determining the cause of death or injury is not unnecessarily disturbed. Reporting the discovery of dead or injured listed species is required in all cases to enable the Service to determine whether the level of incidental take exempted by this BO is exceeded, and to ensure that the terms and conditions are appropriate and effective. Parties finding a dead, injured, or sick specimen of any endangered or threatened species must promptly notify the Service's New England Field Office.

Reinitiation Notice

This letter concludes consultation for the proposed Project, which qualifies for inclusion in the BO issued to the Federal Transportation Agencies. To maintain this inclusion, a reinitiation of this project-level consultation is required where the Federal Highway Administration's discretionary involvement or control over the Project has been retained (or is authorized by law) and if:

1. new information reveals that the Project may affect listed species or critical habitat in a manner or to an extent not considered in the BO;
2. the Project is subsequently modified in a manner that causes an effect to listed species or designated critical habitat not considered in the BO; or
3. a new species is listed or critical habitat designated that the Project may affect.

In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

We appreciate your continued efforts to ensure that this Project is fully consistent with all applicable provisions of the BO. If you have any questions regarding our response, or if you need additional information, please contact Susi von Oettingen of this office at 603-227-6418.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

New Hampshire DOT
Department of Transportation

Victoria F. Sheehan
Commissioner

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

William Cass, P.E.
Assistant Commissioner

ELLSWORTH
X-A004(514)
40874
RPR 9112

No Historic Properties Affected Memo
Revised, Updated Project Impacts

Pursuant to the Request for Project Review signed on October 23, 2017, and for the purpose of compliance with regulations of the National Historic Preservation Act and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources (NHDHR) and the NH Division of the Federal Highway Administration (FHWA) have coordinated the identification and evaluation of historical and archaeological resources with plans to pave and make drainage improvements on Stinson Lake Road in the town of Ellsworth, New Hampshire.

Project Description

The proposed project improvements begin at the intersection of Ranch Road and extend north approximately 2,099 feet to approximately 400' north of the Three Ponds Trail parking lot. The proposed activities include:
- stabilizing roadway side slopes and constructing 4' wide stone lined ditches, or repairing existing ditches;
- paving the existing gravel roadway in approximately the same location;
- clearing approximately 10' from the new edge of pavement;
- replacing structurally deficient drainage structures where necessary; and,
- constructing a second driveway on the southern side of the Three Ponds Trail parking lot to create a loop turn-around for plow trucks during the winter maintenance season.

One water course crossing is included in the project area along Stinson Lake Road: a concrete slab bridge crossing over Sucker Brook (065/070). This bridge has a construction date of 1900 in NHDOT's bridge database, and was rebuilt in 1993/1994. The 1900s construction date is likely a placeholder and not the original construction date of the bridge. Bridge 065/070 has construction plans that date to 1953. No additional bridge work is proposed under this project.

This memo supersedes the December 2017 and April 2018 "No Historic Properties Affected" memos signed by the Department, the Federal Highway Administration and the State Historic Preservation Officer. The changes in scope include primarily shortening the project area approximately 1,450', re-inclusion of all paving activities including construction of associated gravel shoulders, and construction of the second driveway on the southern side of the Three Ponds Trail parking lot to create a loop turn-around for winter maintenance vehicles.

Analysis

The proposed work has a limited footprint and work will not impact undisturbed areas or locations associated with known archaeological sites. Further, the project does not propose work that will result in any noteworthy visual or aesthetic changes to the area. Two courses of stone walls, identified in the project area were evaluated and neither stone wall qualified for reconstruction, If impacts are necessary, coordination with the adjacent private landowners will be conducted.

Public Consultation

Letters describing the proposed project and consulting party opportunities were sent on January 26, 2017 to town officials and the Historical District Commission, and no responses were received. Discussion on previously identified cultural resources in the area and the results of the NHDOT Bureau of Environment field assessment were shared with the White Mountain National Forest Regional Engineer Scott Lees and White Mountain National Forest Archaeologist and Heritage Program Manager Sarah Jordan. Both expressed no concerns.

Determination of Effect

Based on a review pursuant to 36 CFR 800.4, we agree on a No Historic Properties Affected finding for the project.

Section 4(f) *(to be completed by FHWA)*	*There Will Be:*	☒ No 4(f);	☐ **Programmatic 4(f);**	☐ **Full 4 (f);** or
	☐ **A finding of *de minimis* 4(f) impact as stated:** In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of *de minimis* impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the *de minimis* findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

for Patrick Bauer, Administrator — Date 7/30/18
Federal Highway Administration

Jill Edelmann — Date 7/27/2018
Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

Elizabeth H. Muzzey, DSHPO — Date 8/6/18
State Historic Preservation Officer
NH Division of Historical Resources

c.c. Chris St. Louis, NHDHR; Jamie Sikora, FHWA; Meli Dube, DOT; Tobey Reynolds, DOT

\\dot\data\Environment\PROJECTS\ELLSWORTH\40874\Cultural\Memos\40874 No Historic Properties Affected for FHWA 7-24-18.docx

US Army Corps of Engineers
New England District

U.S. Army Corps of Engineers
New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.* *(Stinson Lake)*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	59,602 SF	
2.7 What is the size of the proposed impervious surface area?	61,571 SF	
2.8 What is the % of the impervious area (new and existing) to the overall project site? *(153,955 SF)*	40%	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		X
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		X
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	X	

4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	NA	N/A
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

5

NHDOT Ellsworth 40874
NHDES Wetlands Bureau Standard Dredge and Fill Application
Photos taken by NHDOT Bureau of Environment and Bureau of Highway Design, Summer 2017-2018

Figure 1. Looking northwest at the existing outlet of the 12" CMP carrying stormwater runoff under Ranch Road on the eastern side of Stinson Lake Road and the existing stone rip rap located in the channel and on the bank of Sucker Brook, including Impact Areas A, B, C and D.

Figure 2. Looking northeast at forested wetland located on the eastern side of Stinson Lake Road including Impact Areas E and F.

Figure 3. Looking northeast at the forested wetland located on the eastern side of Stinson Lake Road including Impact Areas G and H.

Figure 4. Looking northeast at forested wetland on the eastern side of Stinson Lake Road including Impact Areas I and J.

Figure 5. Looking southeast at the forested wetland located on the eastern side of Stinson Lake Road including Impact Areas I and J.

Figure 6. Looking northeast at the intermittent stream located in the existing ditch on the eastern side of Stinson Lake Road toward the crossing under Doetown Road, including Impact Areas K, L and M.

Figure 7. Looking southeast toward the outlet of the existing 15" CMP carrying the intermittent stream under Doetown Road on the eastern side of Stinson Lake Road, including Impact Area N.

Figure 8. Looking northeast at the intermittent stream located in the existing ditch on the eastern side of Stinson Lake Road from the crossing of Doetown Road, including Impact Area N.

Figure 9. Looking northeast at the forested and scrub-shrub wetlands on the eastern side of Stinson Lake Road including Impact Areas O, P and Q.

Figure 10. Looking northeast at the scrub-shrub wetland on the eastern side of Stinson Lake Road including Impact Areas R and S.

Figure 11. Looking northeast at the scrub-shrub wetland on the eastern side of Stinson Lake Road including Impact Area T.

Figure 12. Looking east at the erosion and sedimentation in the emergent wetland at the outlet of the existing 18" CMP on the western side of Stinson Lake Road which conveys stormwater runoff and water from the nearby scrub-shrub wetland on the eastern side of Stinson Lake Road, including Impact Area AL.

Figure 13. Looking west at the erosion and sedimentation in the emergent and forested wetlands at the outlet of the existing 18" CMP on the western side of Stinson Lake Road, including Impact Areas AL, E, V and W.

Figure 14. Looking northeast at the forested wetland located on the western side of Stinson Lake Road between the roadway and the eastern edge of the existing Three Ponds Trail head parking lot, including Impact Areas AO and AQ.

Figure 15. Looking west at the forested wetland located along the southern edge of the existing Three Ponds Trail head parking lot on the western side of Stinson Lake Road at the proposed site for the additional driveway, including Impact Areas AO and AP.

Figure 16. Looking east at the forested wetland located on the western side of Stinson Lake Road from the southern edge of the existing Three Ponds Trail head parking lot at the proposed site for the additional driveway, including Impact Areas AM and AN.

Figure 17. Looking east at the forested wetland on the eastern side of Stinson Lake Road including Impact Areas X and Y.

Figure 18. Looking directly down at the inlet of the existing 48" RCP carrying an unnamed stream under Stinson Lake Road from the top of the headwall on the western side of Stinson Lake Road, including Impact Areas AA, AB, AC, AD and AE.

Figure 19. Looking east at the inlet of the existing 48" RCP carrying an unnamed stream under Stinson lake Road from the channel of the stream on the western side of Stinson Lake Road, including Impact Areas AA, AB, AC, AD and AE.

Figure 20. Looking west at the outlet of the existing 48" RCP carrying an unnamed stream under Stinson Lake Road from the downstream channel on the eastern side of Stinson lake Road, including Impact Areas AF, AG, AH, AI, AJ and AK.

Figure 21. Looking east at the outlet of the existing 48" RCP carrying an unnamed stream under Stinson Lake Road on the eastern side of Stinson Lake Road, including Impact Areas AF, AG, AH, AI , AJ and AK.

General Erosion Control Sequencing

1. A SWPPP and Erosion Control Monitoring will be required for this project.
2. Each site will be constructed individually with erosion control BMP's installed prior to construction at each location.
3. Commence work while monitoring and maintaining erosion control BMP's as required.
4. Stabilize each site before moving operations to the next site.
5. BMP's and monitoring will continue at each site until stabilization (seed growth) is verified.
6. Work on culverts carrying streams shall occur during low flow conditions.

Culvert Replacements

1. Access culverts from Stinson Lake Road. Temporary and permanent impacts will be limited to those shown on the wetland and erosion control plans.
2. Install temporary safety barrier with lighting as required to replace the existing 48" RCP.
3. Provide single lane use for traveling public at all times, restoring traffic to two lanes during non-construction hours.
4. Clear & trim existing trees and brush within the work area as shown on plans.
5. Install perimeter control, using double perimeter control within 50 ft. of wetlands.
6. Install clean water bypass in stream areas.
7. Excavate and install stone fill for inlet and outlet protection.
8. Remove existing drainage and install new drainage, end section or headwall, and CB as specified in drain note.
9. Repair slope with humus, seed, slope stabilization, and turf establishment items.
10. Remove all temporary erosion control measures upon stabilization.

Construct Stabilized Drainage Ditches

1. Clear & trim existing trees and brush within the work area as shown on plans.
2. Install perimeter control, using double perimeter control within 50 ft. of wetland.
3. Excavate and install stone lining in ditch.
4. Construct fill or cut slope as shown in the plans. Repair slopes with humus, seed, slope stabilization, and turf establishment items.
5. Remove all temporary erosion control measures upon stabilization.

Paving

1. Install perimeter control
2. Provide single lane use for traveling public at all times, restoring traffic to two lanes during non-construction hours.
3. Clear & trim existing trees and brush within the work area as shown on plans.
4. Cut or fill slopes as depicted on the plans and cross sections. Stabilize slopes with humus, seed, slope stabilization and turf establishments items.
5. Scarify 9" of existing gravel road, removing any rocks 4" in diameter and larger.

6. Install 3" of Crushed Gravel over scarified road surface.
7. Pave 2" binder course from start to end of project.
8. Pave 1" wearing course from start to end of project.
9. Remove all temporary erosion control measures upon stabilization.

Proposed Guardrail

1. Install Perimeter control, using double perimeter control within 50 ft. of wetlands.
2. Remove existing guardrail, construct guardrail platform, and install proposed guardrail & end terminals as specified in guardrail note.
3. Repair slope with humus, seed, slope stabilization, and turf establishment items.
4. Remove all temporary erosion control measures upon stabilization.

July 26, 2018

Elsworth 40874 NHDES Wetlands Bureau Standard Dredge and Fill Aplication
PART Env-Wt 404 CRITERIA FOR SHORELINE STABILIZATION

Env-Wt 404.01 Least Intrusive Method. Shoreline stabilization shall be by the least intrusive but practical method.

The existing deteriorating, undersized 12" cmp under Ranch Rd is proposed to be replaced with a 24" plastic pipe and headwall. While the existing culvert outlets directly above Sucker Brook, the new culvert is proposed to outlet at a headwall approx. 8' away from the existing pipe outlet. Moving the new outlet away from the stream, permits room to construct a stone outlet apron to provide some stormwater energy dissipation, while simultaneously repairing the area where the former pipe was removed.

Env-Wt 404.02 Diversion of Water. Diversion of stormwater run-off often provides effective and low maintenance erosion protection, and shall be used to the maximum extent practical.

The terrain does not lend itself well to diversion in this case, however 2 catchbasins are proposed to be added at the inlet end of the proposed culvert to allow for some sedimentation and intercept anticipated storm flows.

Env-Wt 404.03 Vegetative Stabilization.

(a) Natural vegetation shall be left intact to the maximum extent possible. If space and soil conditions allow, unstable banks shall be cut back to a flatter slope, seeded, and replanted with native, non-invasive trees and shrubs.

Existing streambanks are stable and naturally vegetated with grass. Bank disturbance shall be kept to the minimum possible to install the stone apron energy dissipation and bank stabilization at the proposed culvert outlet.

(b) If space relative to the highest observable tide line, water turbulence, and soil conditions allow, the project shall include vegetation of existing sand beach or dunes or construction of vegetated sand dunes.

NA-This project is not related to a tidal water.

Env-Wt 404.04 Rip-rap.

(a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

While no rip-rap is proposed, the proposed stone apron will consist of 1' deep Class C Stone installed on a geotextile matting to stabilize the old culvert removal area and provide energy dissipation at the new culvert outlet. The 25 yr design storm flow through the proposed 24" culvert is estimated to be 24 cfs at 7.7 fps, with an estimated 15.4 cfs at 4.9 cfs for the 10 year design storm, as these velocities exceed permissible velocities for vegetated channel slopes of 0-5% which are roughly 5%.

Table 4.1.5c Permissible velocites for channels lined with vegetation

Channel Slope %	Vegetation Type	Permissible Velocity (fps)
0 -5	tall fescue, reed canarygrass, grass legume mixture, or other durable native NH grass	5
5-10	"	4
> 10	tall fescue, or reed canarygrass	3

Source: New York State Stormwater Management Design Manual (simplified)

(b) Applications for rip-rap shall include:

(1) Designation of a minimum and maximum stone size;
(2) Gradation;
(3) Minimum rip-rap thickness;
(4) Type of bedding for stone;
(5) Cross-section and plan views of the proposed installation;
(6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline; and
(7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

Class C stone is much smaller than Rip-rap. Class C stone gradation requirements are as follows:

2.1.3 Class C stone shall consist of clean, durable fragments of ledge rock of uniform quality, reasonably free from thin or elongated pieces. The stone shall be made from rock which is free from topsoil and other organic material. The stone shall be graded as follows:

Sieve Size	Percentage by Weight Passing
12 in	100
4 in	50 - 90
1-1/2 in	0 - 30
3/4 in	0 - 10

Aprons will consist of 1' of Class B Stone installed on Permanent Control Class 1, Non-Woven Geotextile.

(c) Applications to use rip-rap adjacent to great ponds or water bodies where the state holds fee simple ownership shall include a stamped surveyed plan showing the location of the normal high water shoreline and the footprint of the proposed project. NA

(d) Rip-rap shall be located shoreward of the normal high water shoreline, where practical, and shall not extend more than 2 feet lakeward of that line at any point. N/A- this project does not impact the normal high water shoreline of a lake. This Class B stone installation is proposed along the bank of Sucker Brook which feeds into Stinson Lake. Please refer to the wetland plans with this application.

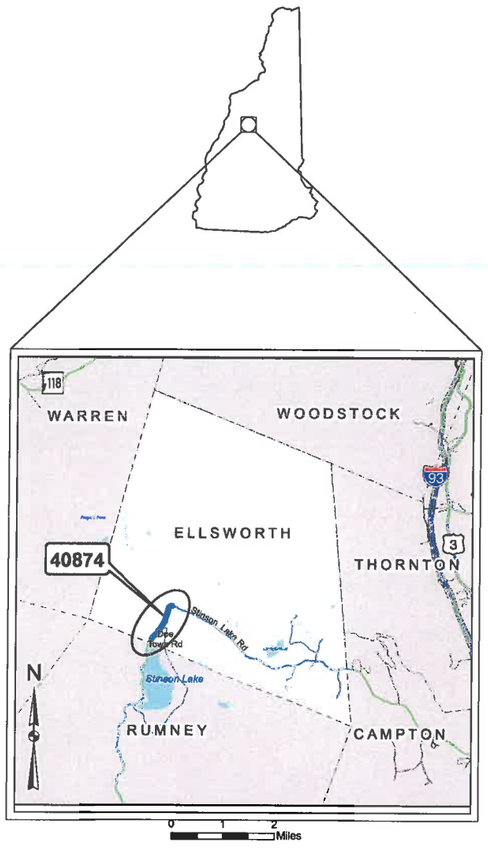
(e) Stamped engineering plans shall be provided as part of any application for rip-rap in excess of 100 linear feet along the bank of a stream or river. Class B stone will impact 26 LF of the Sucker Brook bank.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

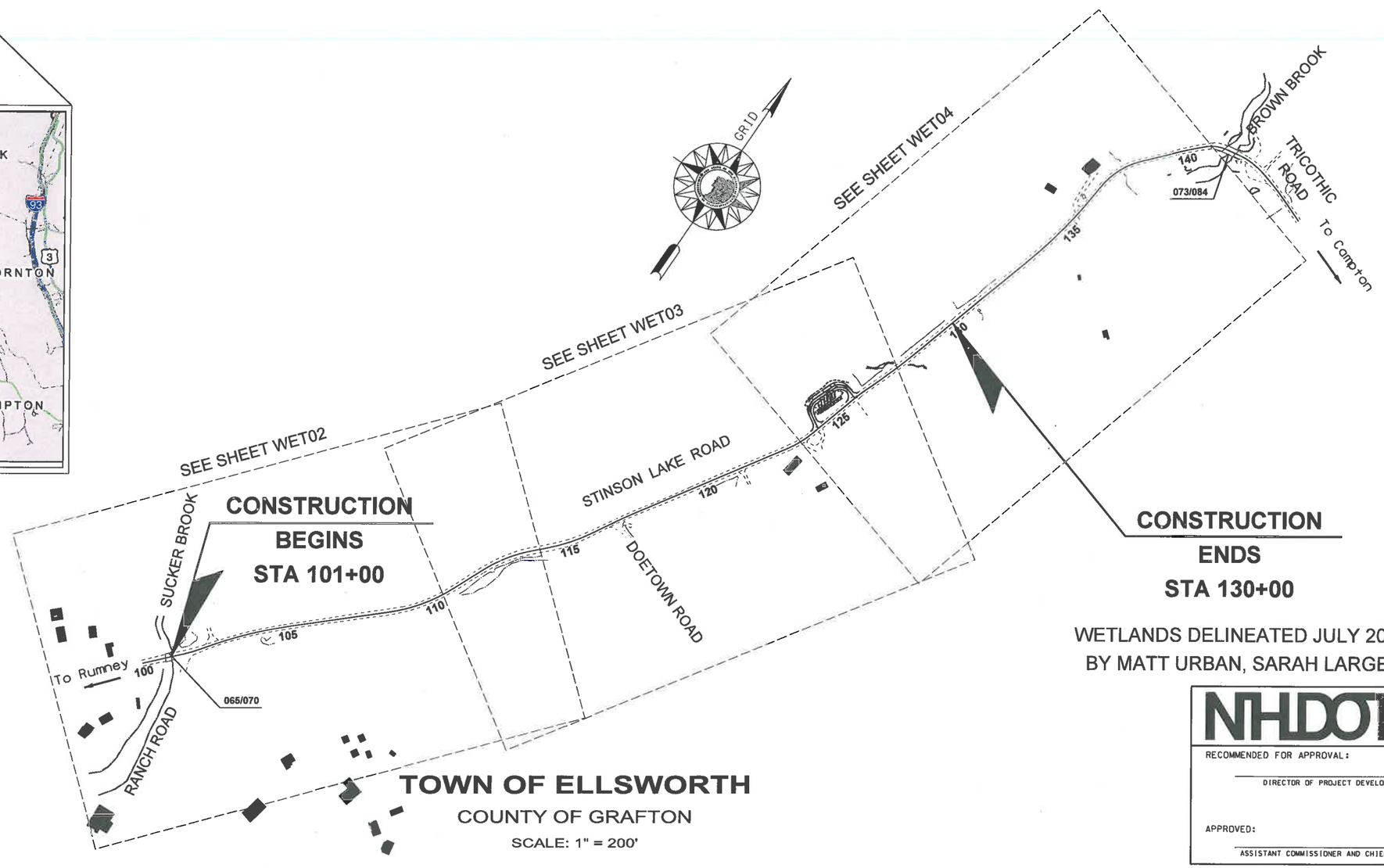
WETLANDS PLANS
FEDERAL AID PROJECT

X-A004(514)
N.H. PROJECT NO. 40874

DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 15	150
AVERAGE DAILY TRAFFIC 20 XX	XX
PERCENT OF TRUCKS	NA
DESIGN SPEED	30 MPH
LENGTH OF PROJECT	2900 LF



LOCATION MAP



TOWN OF ELLSWORTH
COUNTY OF GRAFTON
SCALE: 1" = 200'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

WETLANDS DELINEATED JULY 2017 & JULY 2018
BY MATT URBAN, SARAH LARGE, & MELI DUBE

INDEX OF SHEETS

DRAWN BY K. Corliss DATE July 2018
CHECKED BY TEAM BALDWIN DATE JULY 2018

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:

ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A004(514)	40874	1	17

GENERAL

EDGE OF PAVEMENT
TRAVELED WAY

PROPOSED ROADWAY | existing roadway | (pavement removed outside slope lines)

DRIVEWAYS

(label surface type)

BUILDINGS

(building to be removed)

(label house or type of building)

FOUNDATION

(label type)

LEACH FIELD

leach field

BRIDGE CROSSINGS

STREAM | OVERPASS

STEPS AND WALK

(label type)

INTERMITTENT WATER COURSE

SHORE LINE

river/stream | pond (label name of water body)

POTENTIAL WET AREA SYMBOL

BRUSH OR WOODS LINE

TREES (PLANS)

(deciduous) (coniferous) (stump)

TREE OR STUMP (CROSS-SECTIONS)

(show station, circumference in feet & type)

HEDGE

(label type)

MONITORING WELL

mon W

WELL

W

FLAG POLE

fp

ORIGINAL GROUND (TYPICALS)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

existing | PROPOSED

GUARDRAIL (label type)

bgr
cgr

JERSEY BARRIER

CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE)

(points toward retained ground)

FENCE (LABEL TYPE)

SIGNS

(single post)
(double post)

GAS PUMP

gp

FUEL TANK (ABOVE GROUND)

ft (label size & type)

STORAGE TANK FILLER CAP

fc

SEPTIC TANK

S

GRAVE

gr

MAILBOX

mb

VENT PIPE

vp

SATELLITE DISH ANTENNA

da

PHONE

ph

GROUND LIGHT/LAMP POST

gl lp

BORING LOCATION

B

TEST PIT

TP

INTERSTATE NUMBERED HIGHWAY

293

UNITED STATES NUMBERED HIGHWAY

3

STATE NUMBERED HIGHWAY

102

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE

2
PUB2E

DELINEATED WETLAND — DW
ORDINARY HIGH WATER — OHW
TOP OF BANK — TOB
TOP OF BANK & ORDINARY HIGH WATER — TOBOHW
NORMAL HIGH WATER — NHW
WIDTH AT BANK FULL — WBF
PRIME WETLAND — PWET
PRIME WETLAND 100' BUFFER — PWET100
NON-JURISDICTIONAL DRAINAGE AREA — NJDA
COWARDIN DISTINCTION LINE — CDL
TIDAL BUFFER ZONE — TBZ
DEVELOPED TIDAL BUFFER ZONE — DTBZ
HIGHEST OBSERVABLE TIDE LINE — HOTL
MEAN HIGH WATER — MHW
MEAN LOW WATER — MLW
VERNAL POOL — VP
SPECIAL AQUATIC SITE — SAS
REFERENCE LINE — REF
WATER FRONT BUFFER — WB50
NATURAL WOODLAND BUFFER — NWB150
PROTECTED SHORELAND — PS250
INVASIVE SPECIES LABEL

I.S. 1 | I.S. 11

INVASIVE SPECIES — INV

FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY — FP500
100 YEAR FLOODPLAIN BOUNDARY — FP100
FLOODWAY — FW

ENGINEERING

CONSTRUCTION BASELINE

30 | 31 | 32

PC, PT, POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)

SLOPE LINE | CLEARING LINE

CLEARING LINE
SLOPE LINE
SLOPE LINE (FILL)
SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:
ORIGINAL GROUND ELEVATION (LEFT)
FINISHED GRADE ELEVATION (RIGHT)

72.5
79.14

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	40874-stdsymb	40874	2	17

DRAINAGE

MANHOLE

CATCH BASIN — cb

DROP INLET — di

(existing) / (PROPOSED)

DRAINAGE PIPE (existing) — (label size & type)

DRAINAGE PIPE (PROPOSED) — (label size & type)

UNDERDRAIN (existing) W/ FLUSHING BASIN — fb

UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN

show direction of flow

HEADER (existing & PROPOSED) — (with stone outlet protection)

END SECTION (existing & PROPOSED) — METAL or PLASTIC / RCP

OPEN DITCH (PROPOSED)

EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE — (label type)

RR RIGHT-OF-WAY LINE

PROPERTY LINE

PROPERTY LINE (COMMON OWNER) — Z

TOWN LINE — BOW / CONCORD

COUNTY LINE — COOS / GRAFTON

STATE LINE — MAINE / NEW HAMPSHIRE

NATIONAL FOREST

CONSERVATION LAND — LC

BENCH MARK / SURVEY DISK

BOUND — bnd (PROPOSED)

STATE LINE/ TOWN LINE MONUMENT — S/L / T/L

NHDOT PROJECT MARKER

IRON PIPE OR PIN — ip

DRILL HOLE IN ROCK — dh

TAX MAP AND LOT NUMBER — 156 / 14 — 1642/341 — 6.80 Ac.±

PROPERTY PARCEL NUMBER — 12

HISTORIC PROPERTY — H

UTILITIES

existing / PROPOSED

TELEPHONE POLE

POWER POLE

JOINT OCCUPANCY

MISCELLANEOUS/UNKNOWN POLE

GUY POLE OR PUSH BRACE

(plot point at face not center of symbol)

LIGHT POLE

LIGHT ON POWER POLE

LIGHT ON JOINT POLE

POLE STATUS:
REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:

R / L — P+04 25.0' — T+04 25.0'

RAILROAD — (label ownership)

RAILROAD SIGN

RAILROAD SIGNAL

UTILITY JUNCTION BOX — jb / JB

OVERHEAD WIRE — OW — (label type)

UNDERGROUND UTILITIES

WATER (on existing lines label size, type and note if abandoned) — W / PW

SEWER — S / PS

TELEPHONE — T / PT

ELECTRIC — E / PE

GAS — G / PG

LIGHTING — L / PL

INTELLIGENT TRANSPORTATION SYSTEM — ITS / PITS

FIBER OPTIC — FO / PFO

WATER SHUT OFF

GAS SHUT OFF

HYDRANT

MANHOLES

SEWER — MHS

TELEPHONE — MHT

ELECTRICAL — MHE

GAS — MHG

UNKNOWN

TRAFFIC SIGNALS / ITS

	existing	PROPOSED
MAST ARM (existing)		30' MA (NOTE ANGLE FROM ℄)
OPTICOM RECEIVER		
OPTICOM STROBE		
TRAFFIC SIGNAL		
PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT		
SIGNAL CONDUIT	-C-C-C-	-PC-PC-PC-
CONTROLLER CABINET	cc	CC
METER PEDESTAL	mp	MP
PULL BOX	pb	PB
LOOP DETECTOR (QUADRUPOLE)		(label size)
LOOP DETECTOR (RECTANGULAR)		(label size)
CAMERA POLE (CCTV)		
FIBER OPTIC DELINEATOR	fod	FOD
FIBER OPTIC SPLICE VAULT		SVF
ITS EQUIPMENT CABINET	its	ITS
VARIABLE SPEED LIMIT SIGN		
DYNAMIC MESSAGE SIGN		
ROAD AND WEATHER INFO SYSTEM		

CONSTRUCTION NOTES

CURB MARK NUMBER - BITUMINOUS	B-1
CURB MARK NUMBER - GRANITE	G-1
CLEARING AND GRUBBING AREA	A
DRAINAGE NOTE	1
EROSION CONTROL NOTE	A
FENCING NOTE	A
GUARDRAIL NOTE	1
ITS NOTE	1
LIGHTING NOTE	A
TRAFFIC SIGNAL NOTE	1

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	40874-stdsymb	40874	3	17

WETLAND IMPACT SUMMARY												
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON-WETLAND) (BANK)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
ELLSWORTH IMPACTS											
2	R3UB1 (SUCKER BROOK)	A					90	7			
2	R3UB1 (SUCKER BROOK)	B			52	15					
5	BANK	C	84	26							
5	BANK	D					18	5			
8	PFO1E	E			672						
8	PFO1E	F					638				
8	PFO1E	G			298						
8	PFO1E	H					248				
9	PFO1E	I			4296						
9	PFO1E	J					1892				
9	PFO1E	K					73				
9	PFO1E	L			31						
10	R4SB3,4	M	0	122	135	61					
11	R4SB3,4	N	0	320	312	160					
12	PF01E	O			111						
12	PF01E	P					410				
13	PSS1E	Q			33						
13	PSS1E	R					363				
13	PSS1E	S			194						
13	PSS1E	T					66				
14	PEM1E	AL			8						
14	PEM1E	U					333				
15	PFO1E	V			234						
15	PFO1E	W					228				
17	PFO1E	X			580						
17	PFO1E	Y					189				
18	BANK	Z	257	39							
18	BANK	AA					95	21			
19	R3UB1	AB					335	33			
20	BANK	AC					235	37			
19	R3UB1	AD			68	23					
20	BANK	AE	272	35							
22	R3UB1	AF			248	42					
21	BANK	AG	349	60							
21	BANK	AH					30	9			
22	R3UB1	AI					40	9			
23	BANK	AJ	318	17							
23	BANK	AK					258	30			
16	PF01E	AM					90				
16	PF01E	AN			371						
30	PF01E	AO			486						
30	PF01E	AP					34				
TOTAL IMPACTS			1280	619	8129	301	5665	151	0	0	0

WETLAND CLASSIFICATION CODES	
PFO1E	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
PEM1E	PALUSTRINE, EMERGENT, PERSISTENT, SEASONALLY FLOODED/SATURATED
PEM1F	PALUSTRINE, EMERGENT, PERSISTENT, SEMI-PERMANENTLY FLOODED
PSS1E	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED
R3UB1	RIVERINE, UPPER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE-GRAVEL
R4SB3,4	RIVERINE, INTERMITTENT, STREAMBED, COBBLE-GRAVEL, SAND
R4SB6	RIVERINE, INTERMITTENT, STREAMBED, ORGANIC
BANK	BANK

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

- # — WETLAND DESIGNATION NUMBER
- # — WETLAND IMPACT LOCATION
- # — WETLAND MITIGATION AREA
- MITIGATION

PERMANENT IMPACTS: 9409 SF
TEMPORARY IMPACTS: 5665 SF
TOTAL IMPACTS: 15,074 SF

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

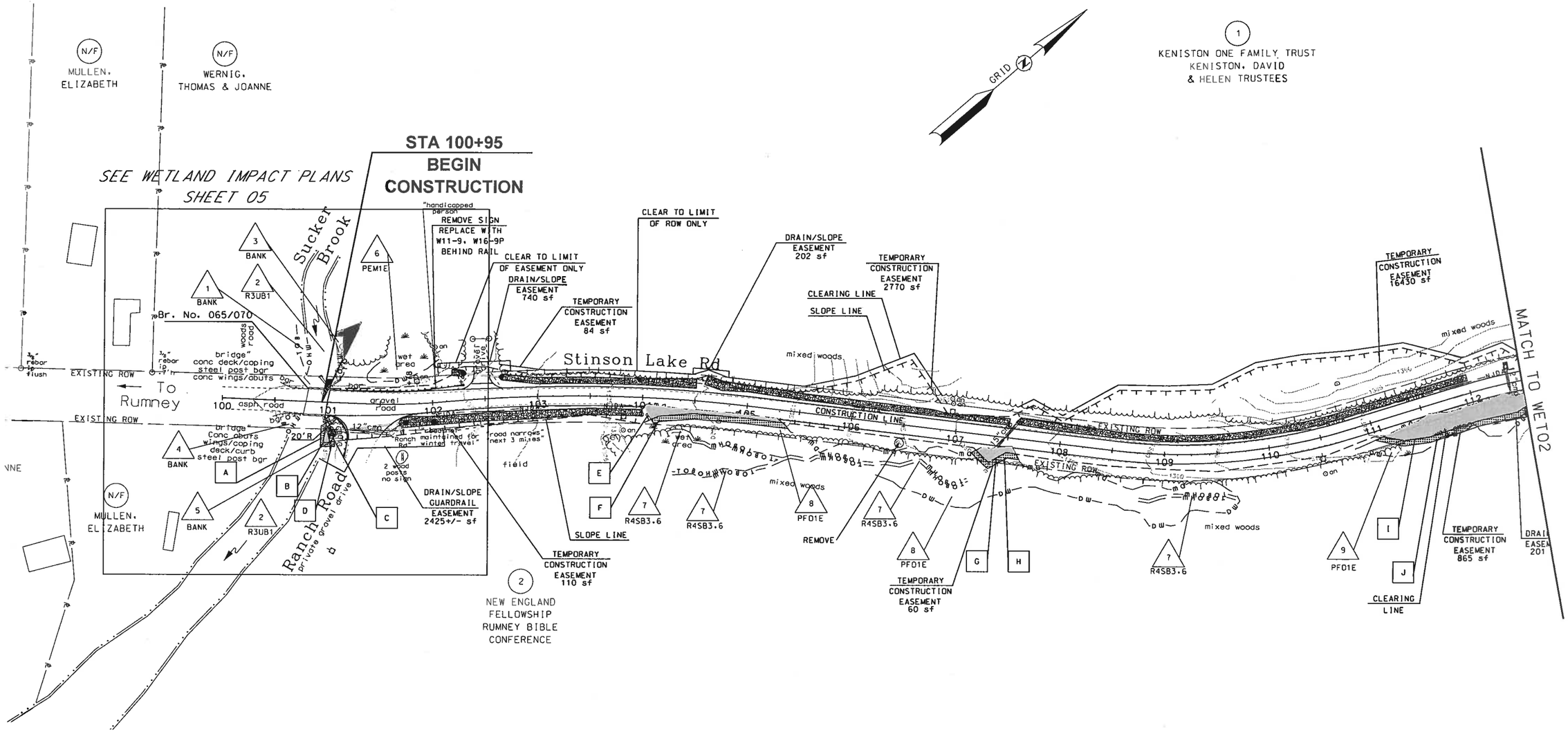
WETLAND IMPACT PLANS
SHEET 01

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	4	17

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	



50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

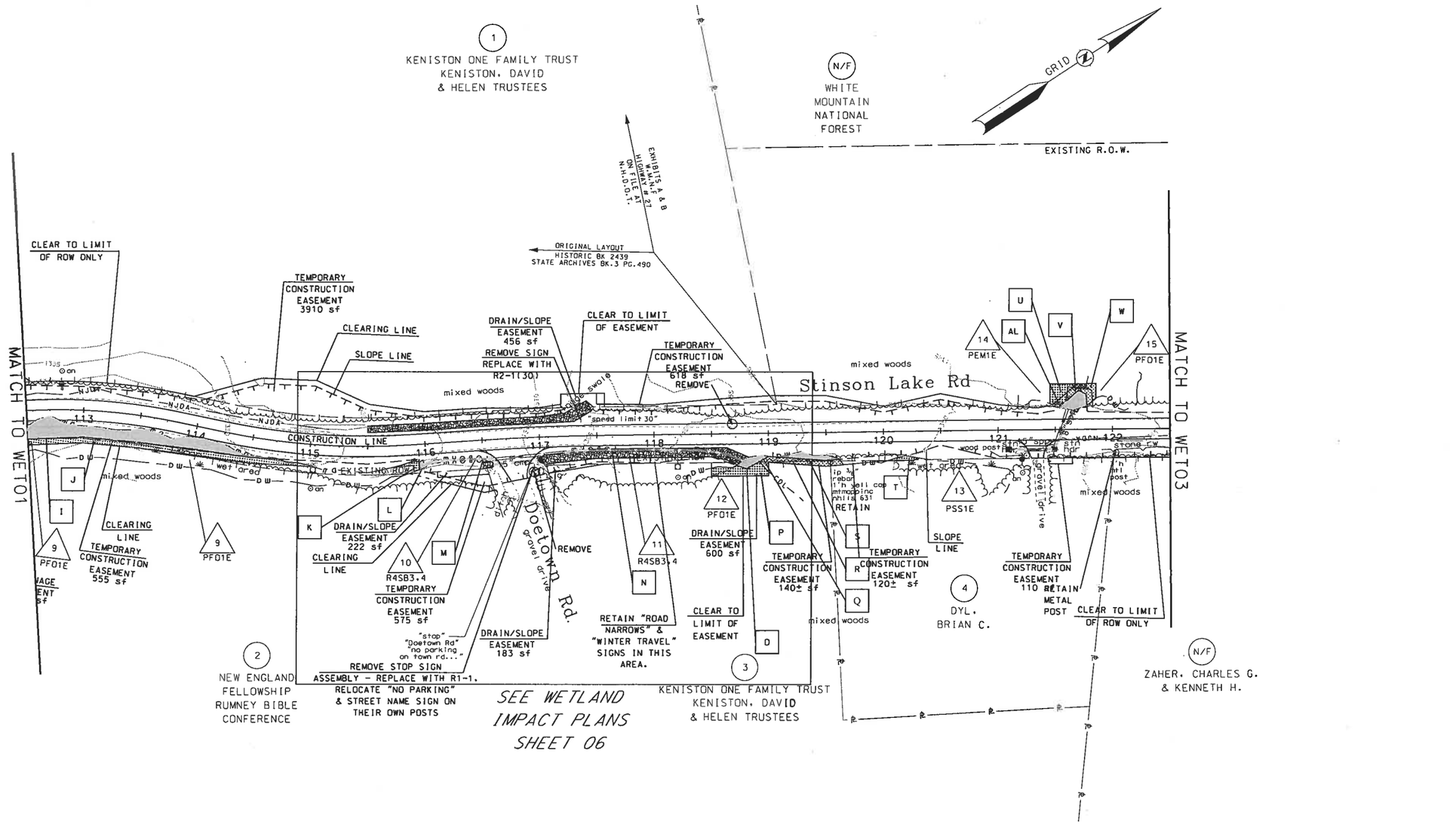
WETLAND IMPACT PLANS SHEET 02

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	5	17

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE



STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

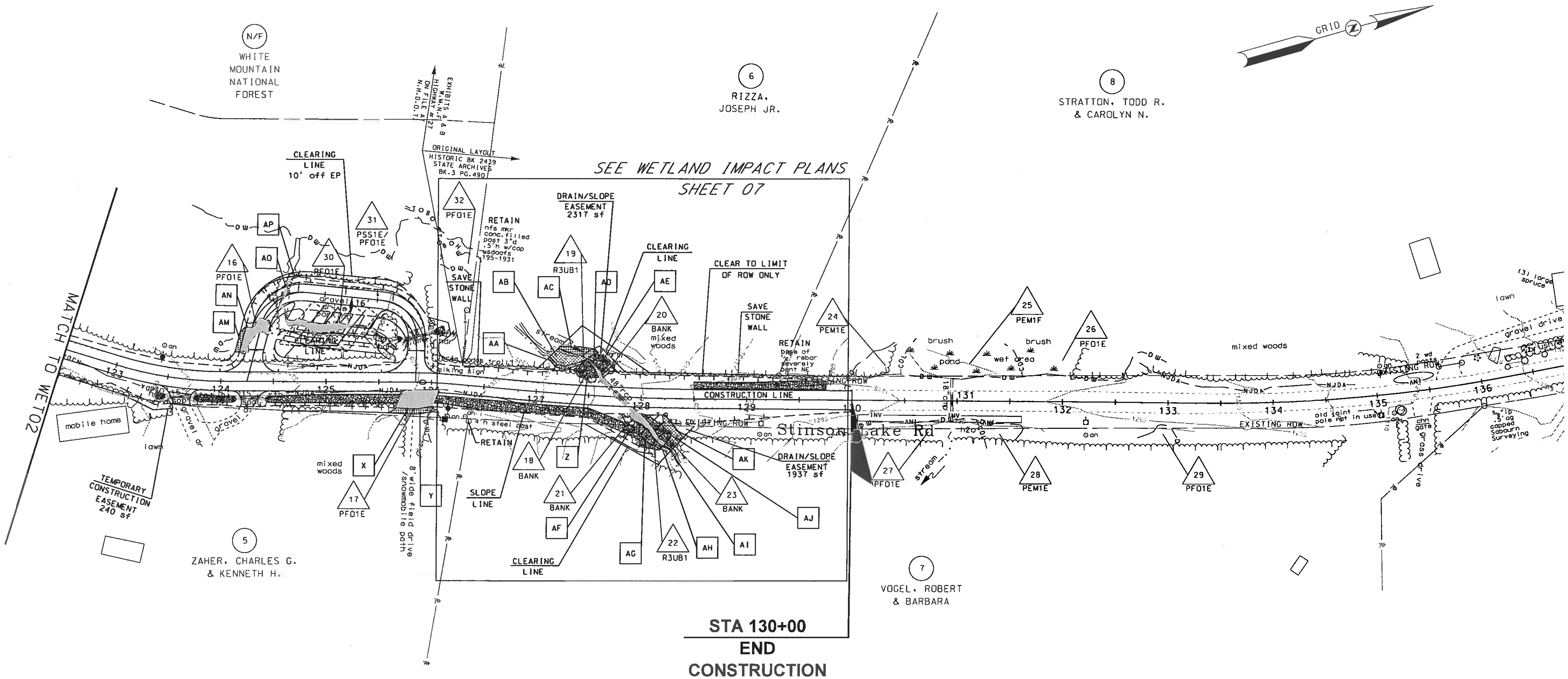
WETLAND IMPACT PLANS SHEET 03

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	6	17

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE



N/F
WHITE MOUNTAIN NATIONAL FOREST
6
RIZZA, JOSEPH JR.
8
STRATTON, TODD R. & CAROLYN N.
GRID
EXHIBITS A & B W.M.N.F HIGHWAY #27 ON FILE AT N.H.D.O.T
ORIGINAL LAYOUT HISTORIC BK 2439 STATE ARCHIVES BK.3 PG.490
SEE WETLAND IMPACT PLANS SHEET 07
CLEARING LINE 10' off EP
MATCH TO WET02
DRAIN/SLOPE EASEMENT 2317 sf
RETAIN nfs mkr conc. filled post 3"d .5'h w/cap usdoafs 195-1931
CLEARING LINE
CLEAR TO LIMIT OF ROW ONLY
SAVE STONE WALL
RETAIN base of ½" rebar severely bent NE
16 PF01E
30 PF01E
31 PSS1E/PF01E
32 PF01E
19 R3UB1
20 BANK mixed woods
24 PEM1E
25 PEM1F
26 PF01E
AP
AO
AN
AM
AA
AB
AC
AD
AE
brush
pond
wet area
mixed woods
lawn
(3) large spruce
gravel drive
2 wd posts
EXISTING ROW
CONSTRUCTION LINE
123
124
125
127
128
129
130
131
132
133
134
135
136
Stinson Lake Rd
mobile home
lawn
gravel dr
TEMPORARY CONSTRUCTION EASEMENT 240 sf
mixed woods
X
17 PF01E
Y
8' wide field drive /snowmobile path
4'h steel post
RETAIN
SLOPE LINE
18 BANK
Z
21 BANK
AF
CLEARING LINE
AG
22 R3UB1
AH
AI
23 BANK
AJ
AK
DRAIN/SLOPE EASEMENT 1937 sf
27 PF01E
stream
28 PEM1E
29 PF01E
old joint pole not in use
chn gate
grass drive
5/8" ip .5' ag capped Sabourn Surveying
5
ZAHER, CHARLES G. & KENNETH H.
7
VOGEL, ROBERT & BARBARA

STA 130+00
END CONSTRUCTION

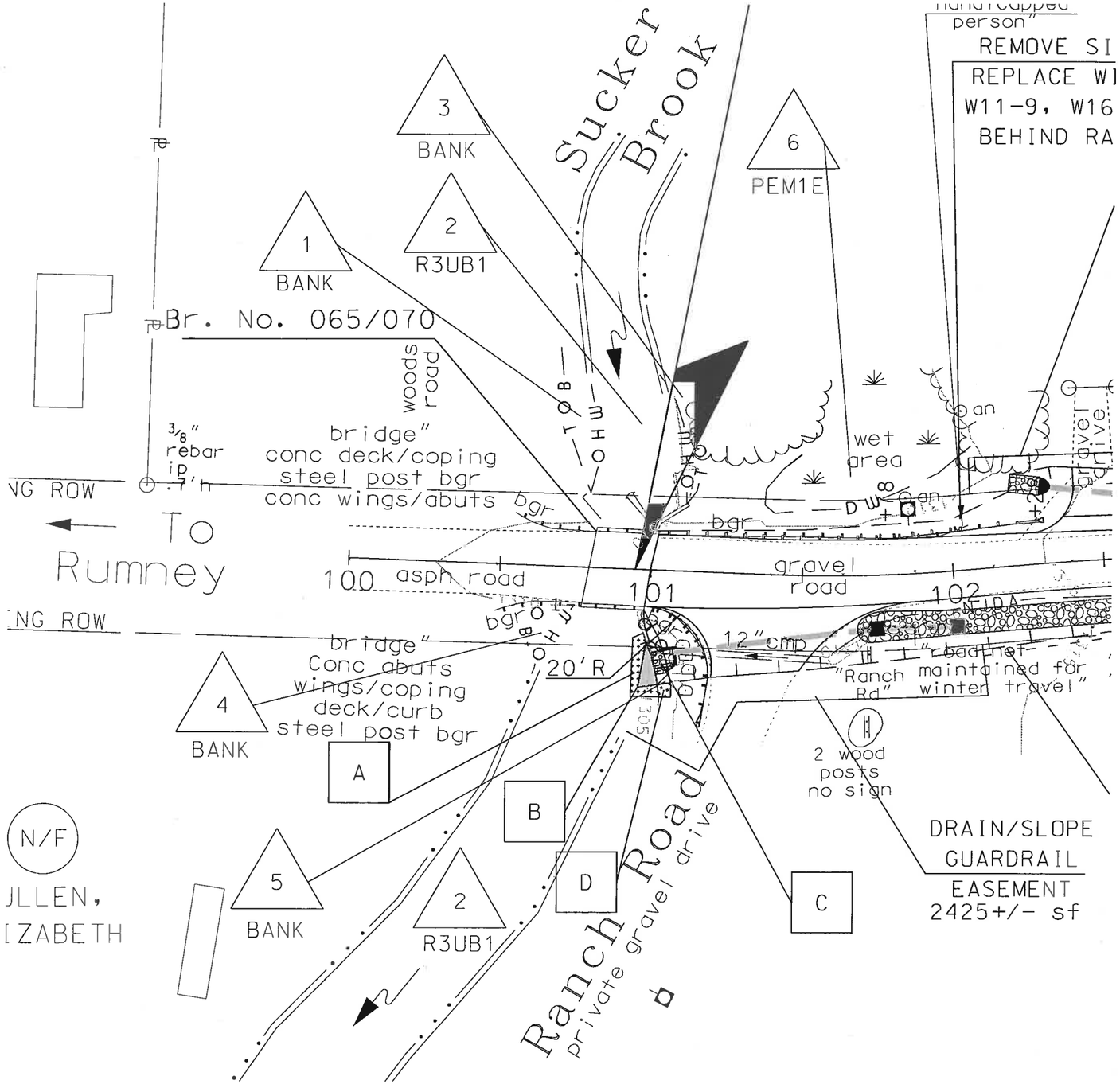
50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS
SHEET 04

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	7	17



20 0 20 40

SCALE IN FEET

REVISIONS AFTER PROPOSAL	NUMBER	DATE	STATION	DESCRIPTION

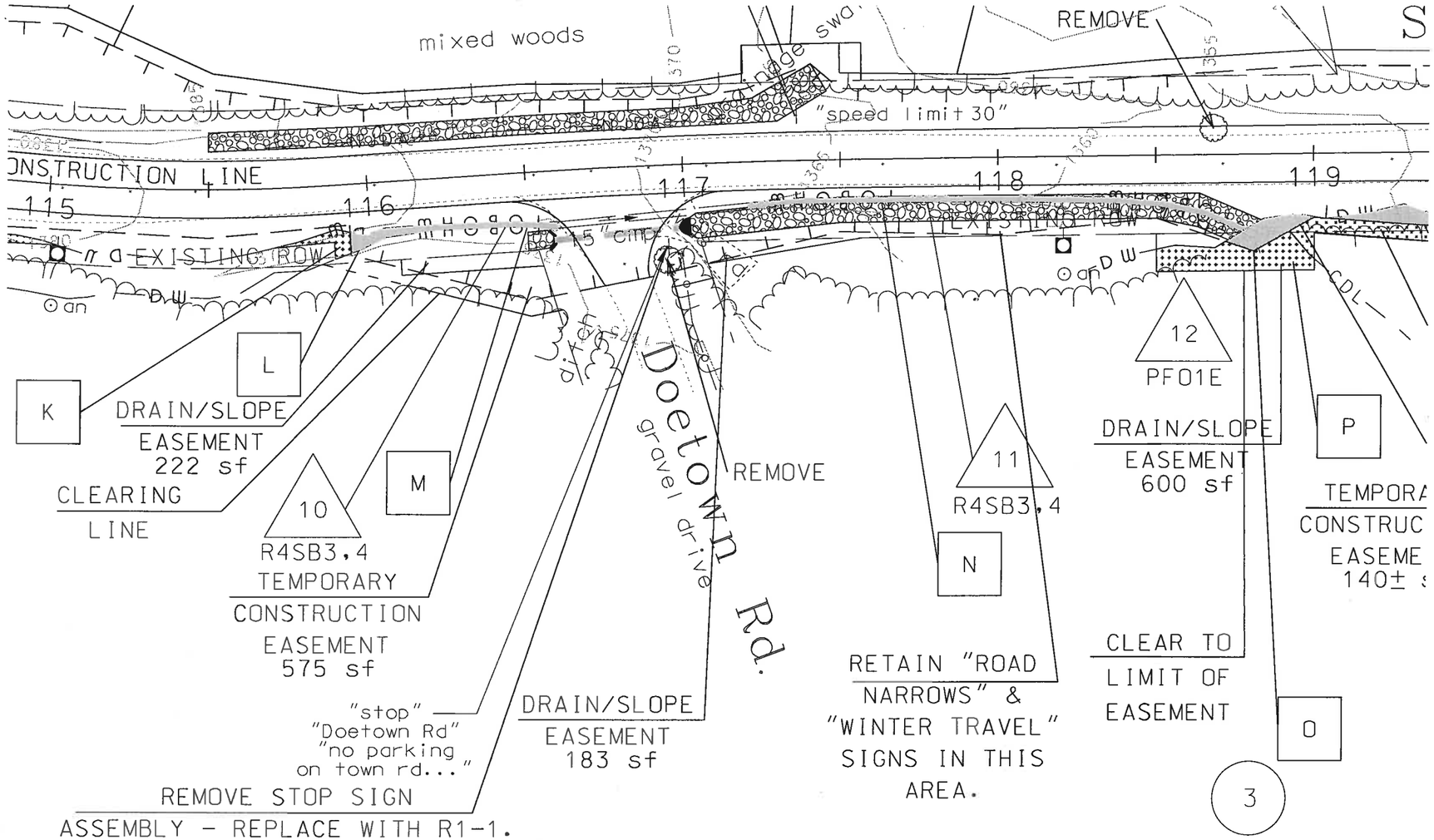
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ▫ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS - EXPANDED STREAM IMPACT DETAIL SHEET 05

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	8	17



REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE

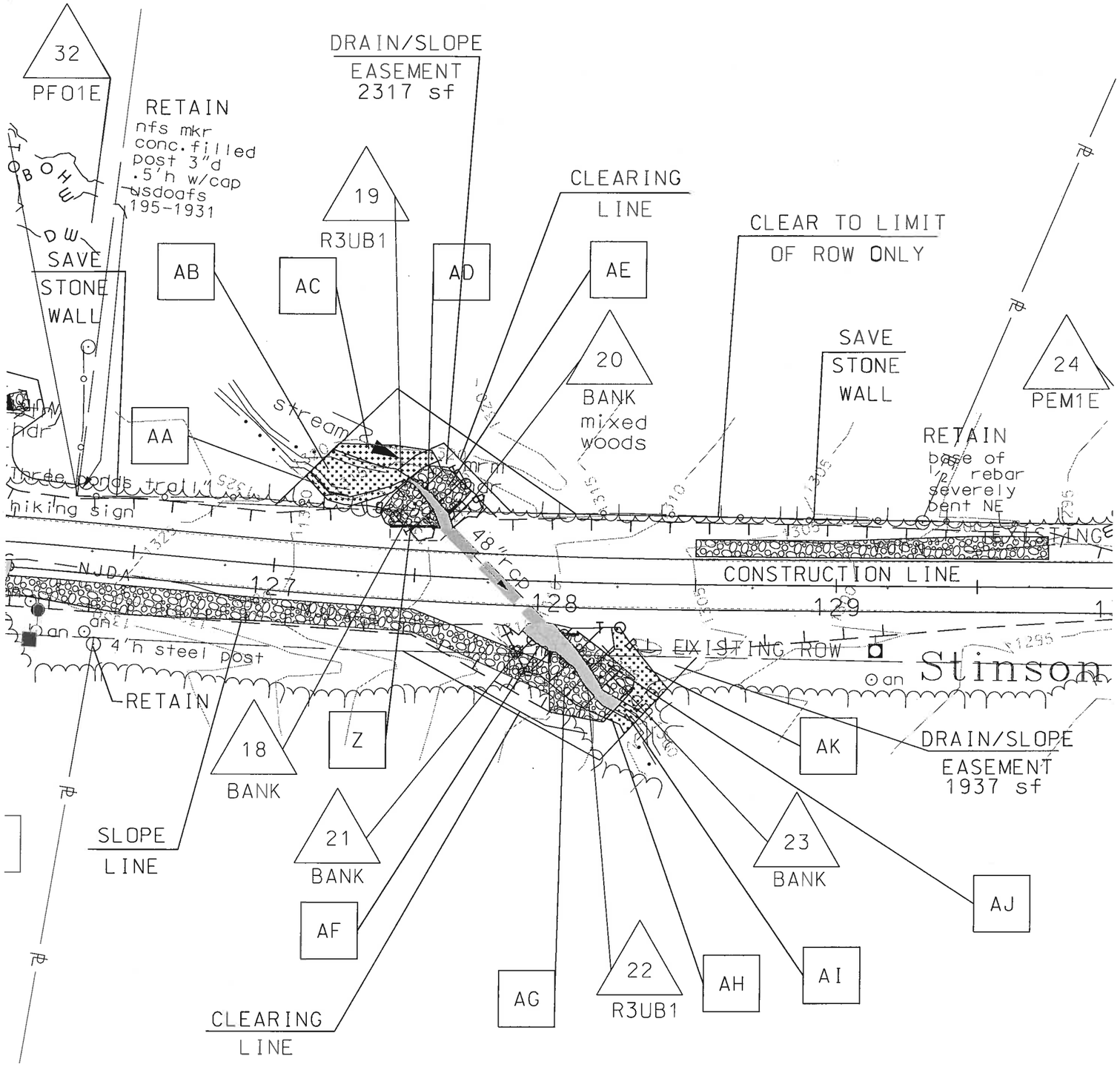
SDR PROCESSED	NAME1	DATE	DATE1		
NEW DESIGN	NAME2	DATE	DATE2		
SHEET CHECKED	NAME3	DATE	DATE3		
AS BUILT DETAILS		DATE			

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS - EXPANDED STREAM DETAIL SHEET 06

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	9	17



REVISIONS AFTER PROPOSAL

STATION	DESCRIPTION	STATION	NUMBER	DATE

SDR PROCESSED	NAME1	DATE	DATE1		
NEW DESIGN	NAME2	DATE	DATE2		
SHEET CHECKED	NAME3	DATE	DATE3		
AS BUILT DETAILS		DATE			

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLANS - EXPANDED STREAM CROSSING DETAIL SHEET 07

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874wetplans	40874	10	17

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
   - 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
   - 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
   - 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
   - 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
   - 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
   - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.

2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
   - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
   - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
   - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
   - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
     - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
     - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
     - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
     - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
   - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
   - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
   - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
   - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30" AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
     - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
     - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
     - (C) AFTER NOVEMBER 30" INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
     - (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WQ 1505.02 AND ENV-WQ 1505.05.
     - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
   - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
   - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
   - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
   - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
   - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.

4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
   - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
   - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
   - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30", OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.

5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
   - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
   - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
   - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
   - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
   - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.

6. PROTECT SLOPES:
   - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
   - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
   - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
   - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.

7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
   - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
   - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.

8. PROTECT STORM DRAIN INLETS:
   - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
   - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
   - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
   - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.

9. SOIL STABILIZATION:
   - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
   - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
   - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
   - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.

10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
    - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
    - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
    - 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
    - 11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
    - 11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
    - 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
    - 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
    - 11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
    - 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
    - 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
    - 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
    - 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
    - 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500: ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
    - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
    - 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
    - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
    - 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
    - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
    - 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.

13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
    - 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
    - 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
    - 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
    - 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.

14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
    - 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
    - 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
    - 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES[2]				ROLLED EROSION CONTROL BLANKETS[3]			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES[1]												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES*	YES*	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

STATE OF NEW HAMPSHIRE
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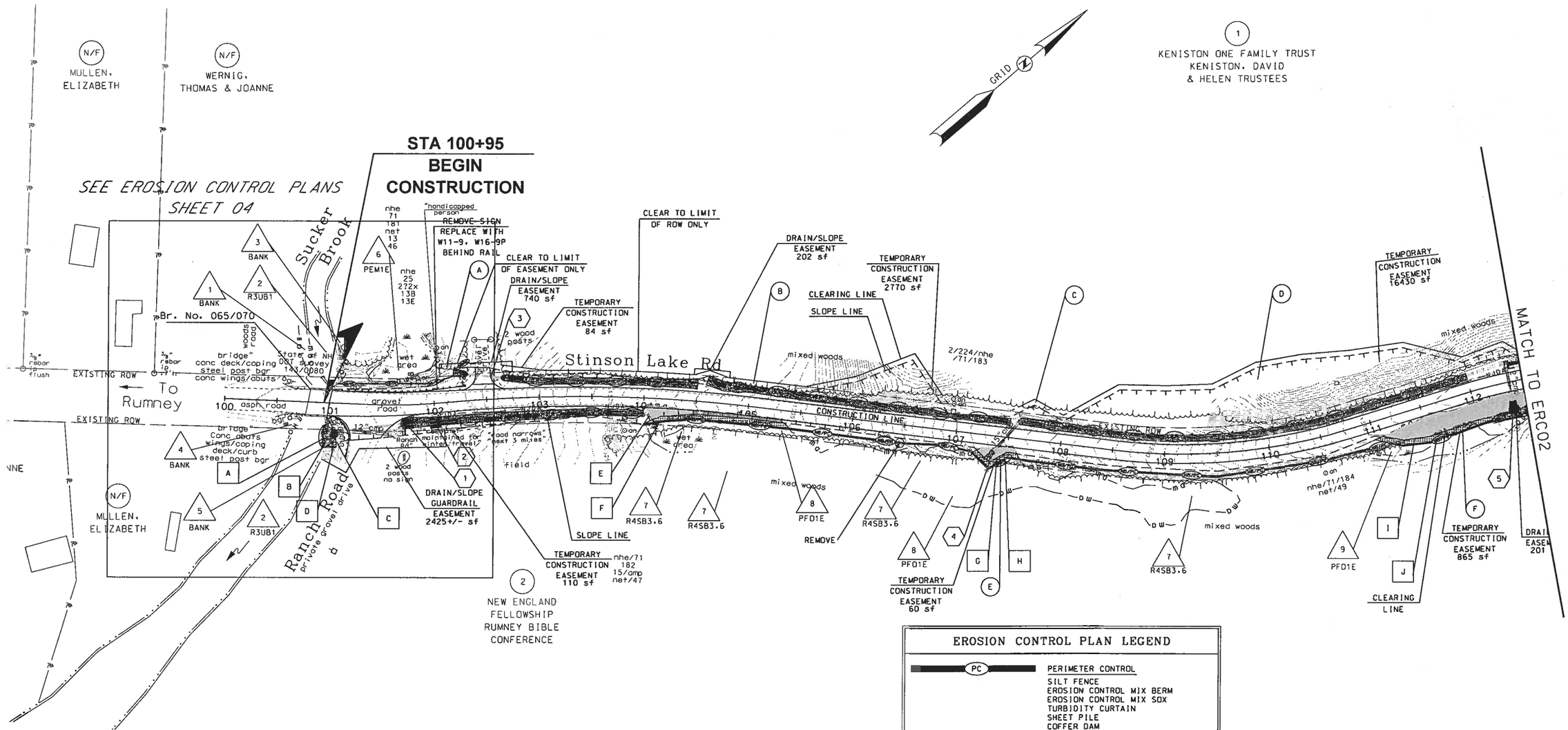
EROSION CONTROL STRATEGIES

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	40874ercplans	40874	11	17



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SCALE IN FEET

EROSION CONTROL PLAN LEGEND

PC	PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL
	SILT FENCE
	EROSION CONTROL MIX BERM
	EROSION CONTROL MIX SOX
	TURBIDITY CURTAIN
	SHEET PILE
	COFFER DAM
CP	CHANNEL PROTECTION
CP	STONE CHECK DAMS
	STRAW WATTLES
	CHANNEL MATTING
	CLASS D EROSION STONE
	CLASS C STONE
CWB	CLEAN WATER BYPASS
	PUMP THROUGH PIPE
	DRAIN THROUGH PIPE OR CHANNEL

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	DATE

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

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EROSION CONTROL PLANS SHEET 01

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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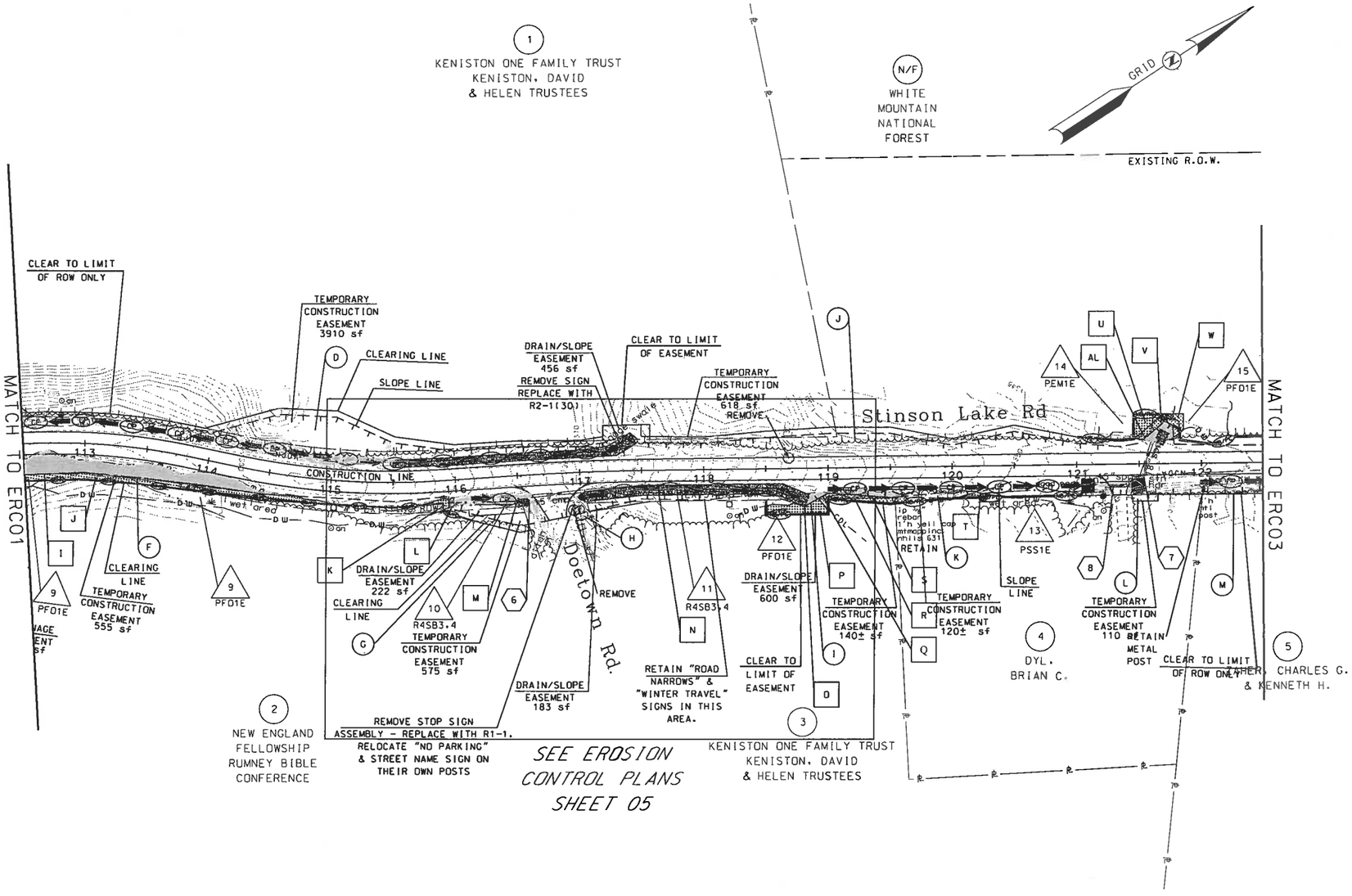

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED	NAME1	DATE	DATE1		
NEW DESIGN	NAME2	DATE	DATE2		
SHEET CHECKED	NAME3	DATE	DATE3		
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EROSION CONTROL PLANS SHEET 02

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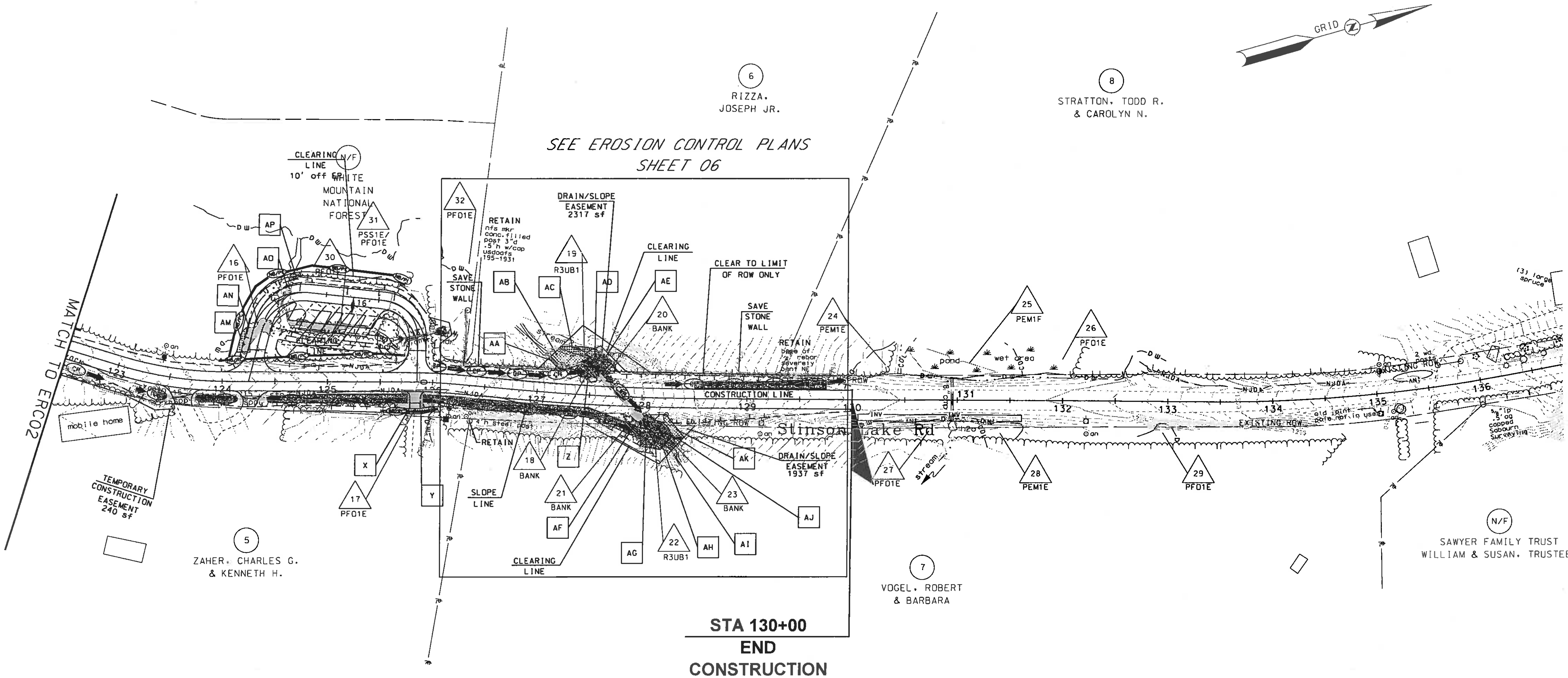
SEE EROSION CONTROL PLANS
SHEET 06
6
RIZZA,
JOSEPH JR.
8
STRATTON, TODD R.
& CAROLYN N.
GRID
N/F
WHITE
MOUNTAIN
NATIONAL
FOREST
CLEARING
LINE
10' off EP
MATCH TO ERC02
mobile home
TEMPORARY
CONSTRUCTION
EASEMENT
240 sf
5
ZAHER, CHARLES G.
& KENNETH H.
16
PF01E
30
PF01E
31
PSS1E/
PF01E
17
PF01E
AP
AO
AN
AM
X
Y
32
PF01E
RETAIN
nfs mkr
conc. filled
post 3"d
.5'h w/cap
usdoafs
195-1931
DRAIN/SLOPE
EASEMENT
2317 sf
19
R3UB1
SAVE
STONE
WALL
AA
AB
AC
AD
AE
20
BANK
CLEARING
LINE
CLEAR TO LIMIT
OF ROW ONLY
SAVE
STONE
WALL
RETAIN
base of
rebar
severely
bent NE
24
PEM1E
CONSTRUCTION LINE
123
124
125
127
128
129
130
131
132
133
134
135
136
Stinson Lake Rd
EXISTING ROW
4'h steel post
RETAIN
18
BANK
Z
SLOPE
LINE
21
BANK
AF
CLEARING
LINE
AG
22
R3UB1
AH
AI
23
BANK
AK
DRAIN/SLOPE
EASEMENT
1937 sf
AJ
27
PF01E
stream
25
PEM1F
pond
wet area
26
PF01E
28
PEM1E
29
PF01E
old joint
pole not in use
2 wd
posts
(3) large
spruce
5/8"ip
.5' ag
capped
Sabourn
Surveying
7
VOGEL, ROBERT
& BARBARA
N/F
SAWYER FAMILY TRUST
WILLIAM & SUSAN, TRUSTEES
STA 130+00
END
CONSTRUCTION

REVISIONS AFTER PROPOSAL				
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SDR PROCESSED	NAME1	DATE DATE1
NEW DESIGN	NAME2	DATE DATE2
SHEET CHECKED	NAME3	DATE DATE3
AS BUILT DETAILS		DATE

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SCALE IN FEET

STATE OF NEW HAMPSHIRE

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EROSION CONTROL PLANS SHEET 03

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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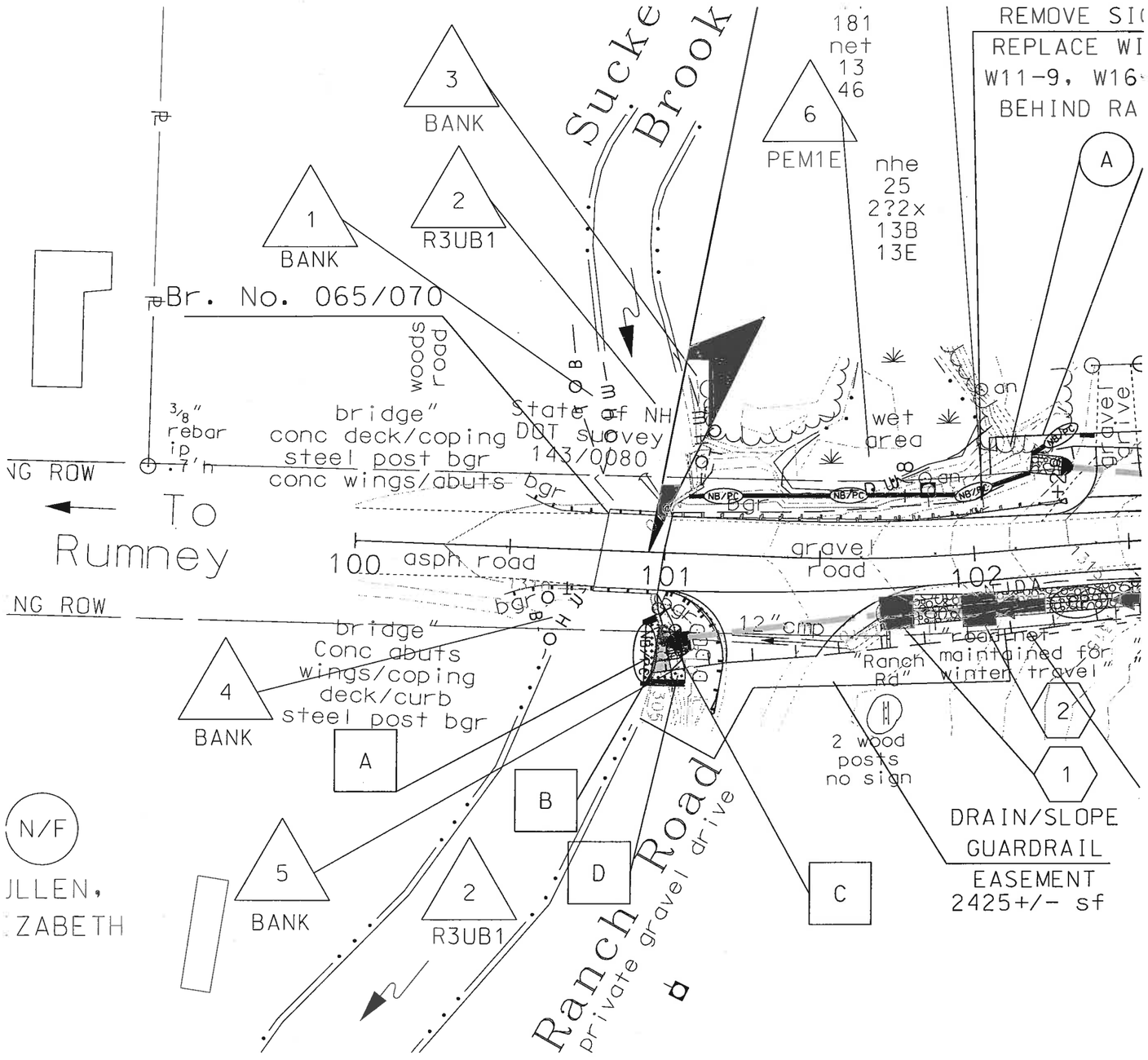

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SCALE IN FEET

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION

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NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
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STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS - EXPANDED STREAM DETAIL SHEET 04

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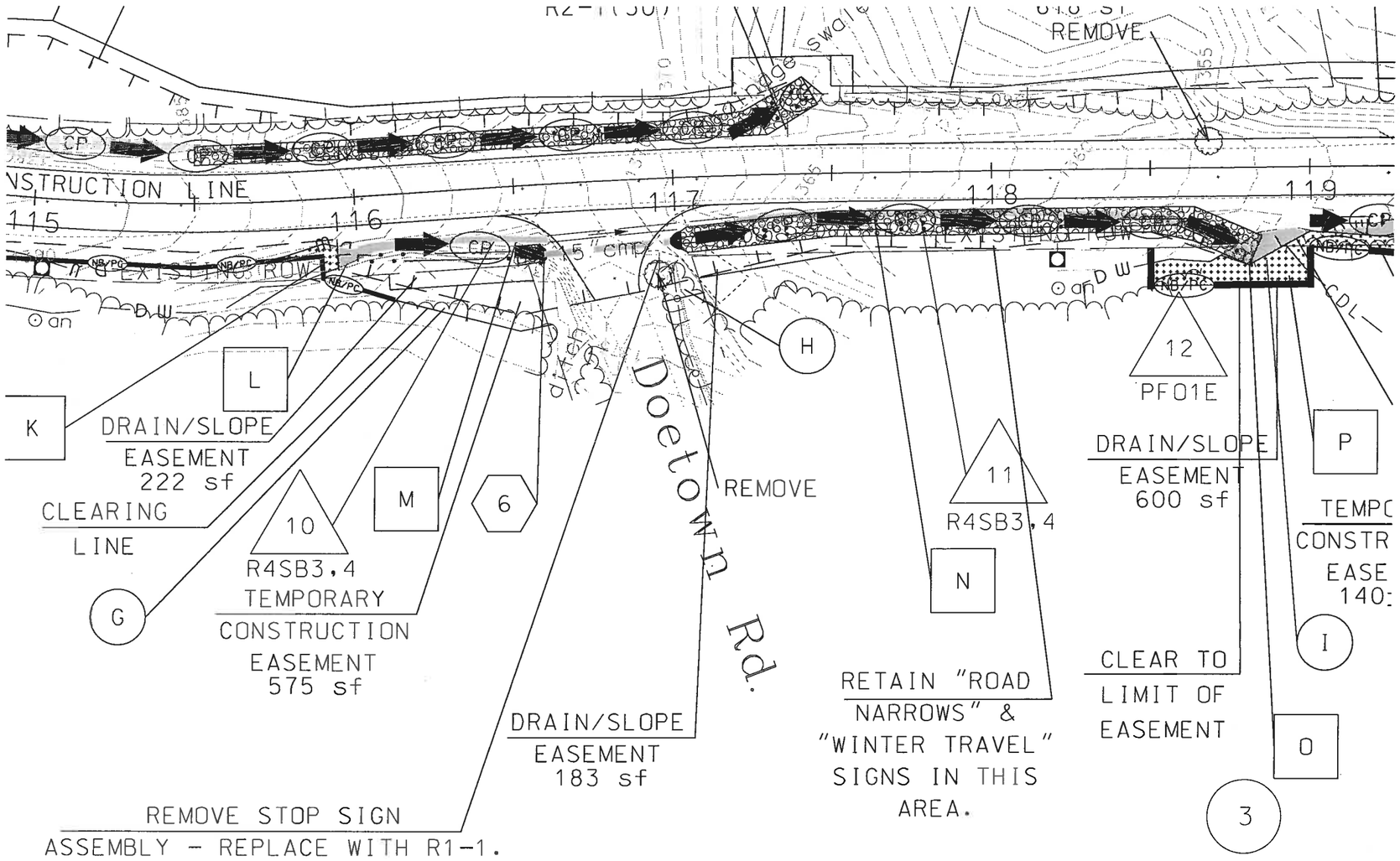

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS - EXPANDED STREAM DETAIL SHEET 05

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874ercplans	40874	16	17

REVISIONS AFTER PROPOSAL

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NEW DESIGN NAME2 DATE DATE2
SHEET CHECKED NAME3 DATE DATE3
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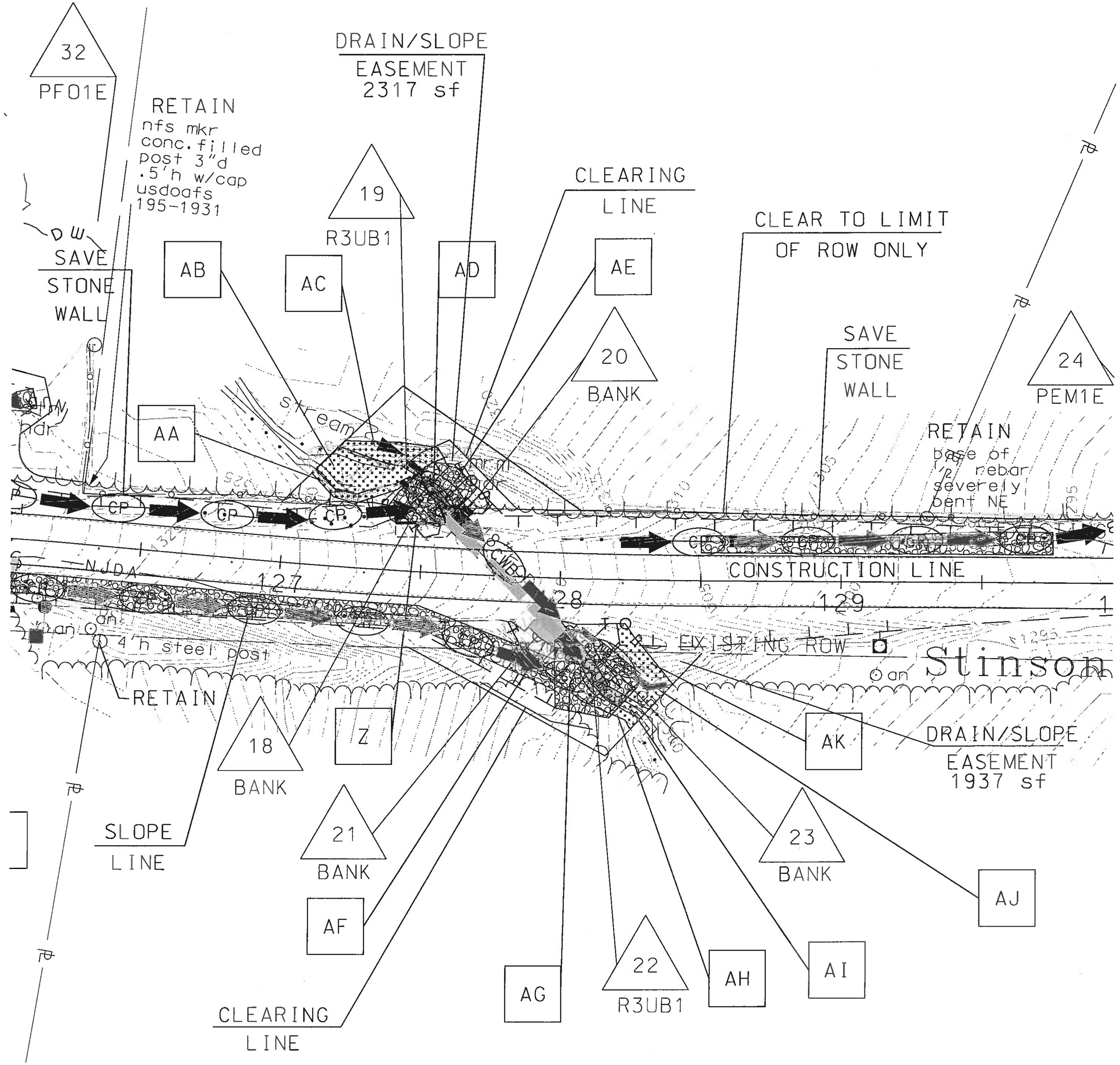

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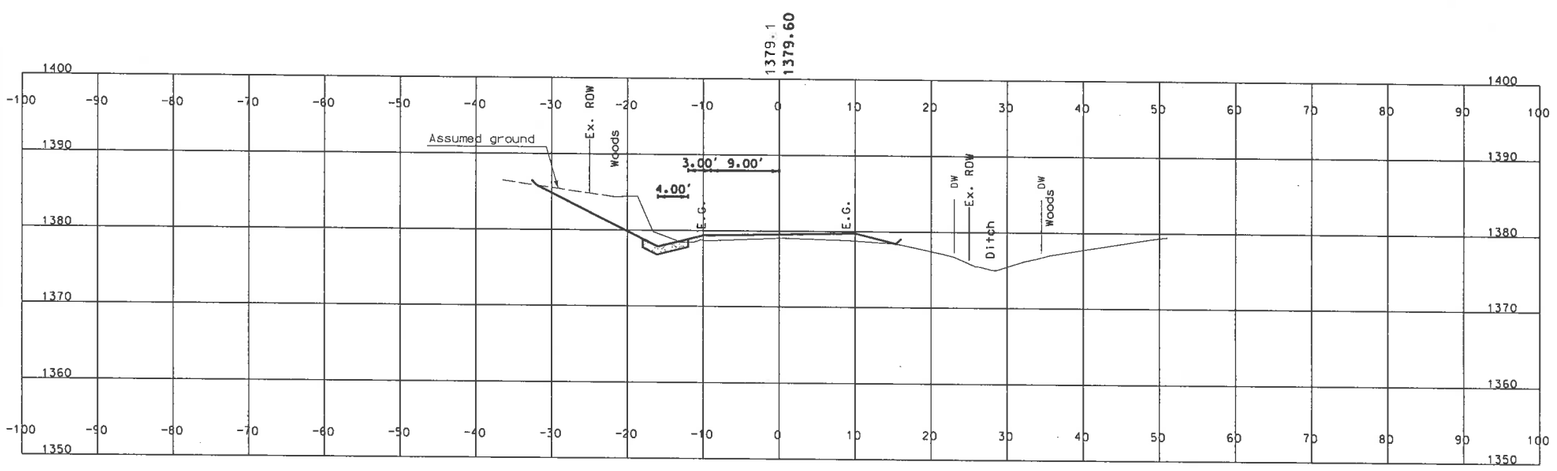
SCALE IN FEET

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
EROSION CONTROL PLANS - EXPANDED STREAM CROSSING DETAIL SHEET 06			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874ercplans	40874	17	17

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION



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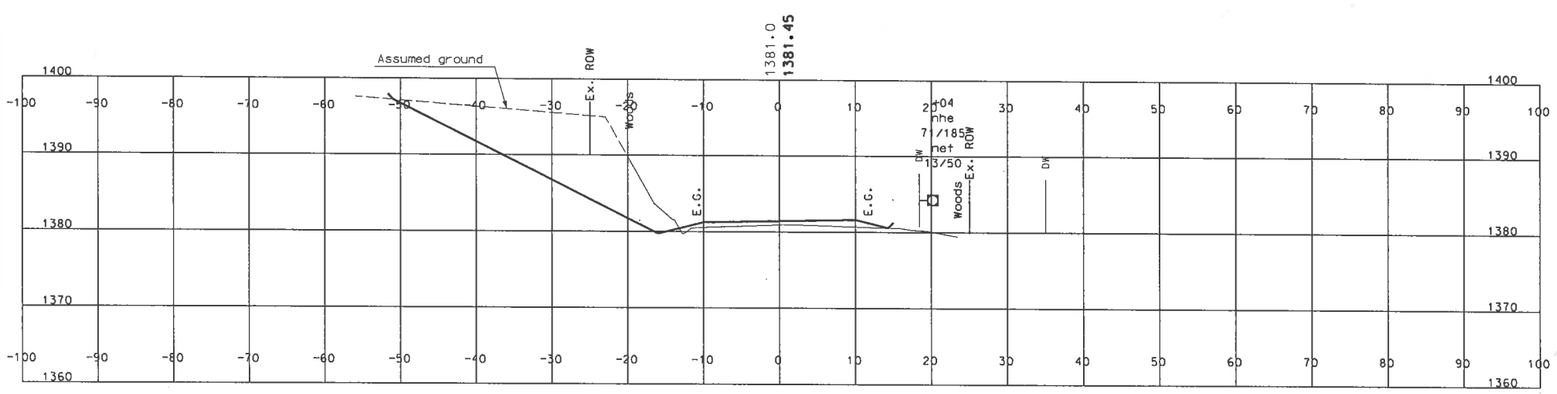

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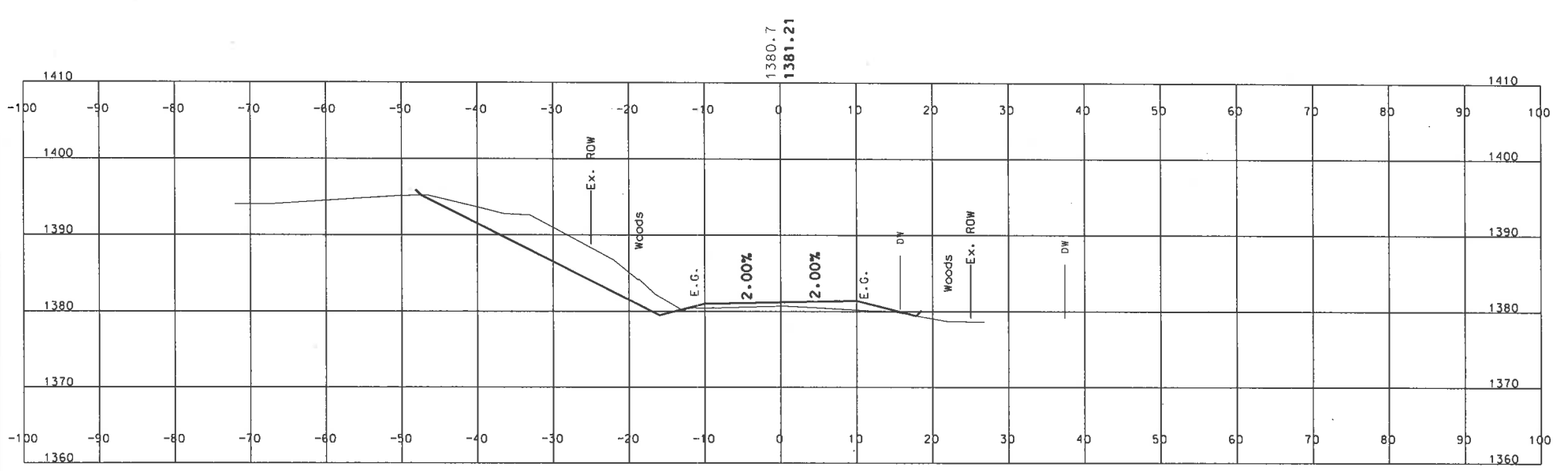

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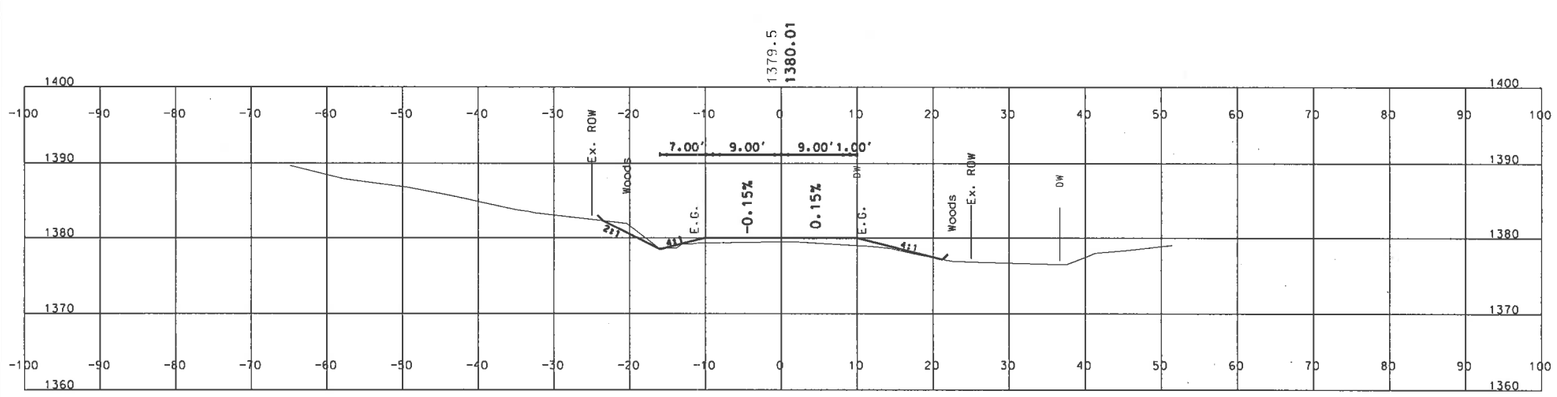

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SHEET TOTALS			
COMMON EXCAV. – C.Y.	ROCK EXCAV. – C.Y.		
FILL – C.Y.	MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	1	4

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
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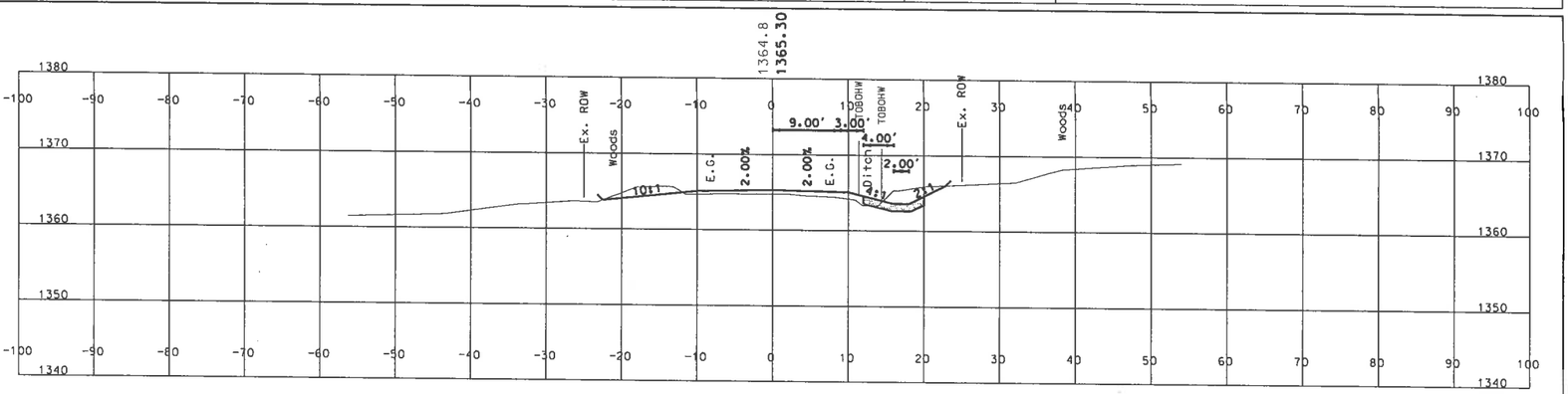
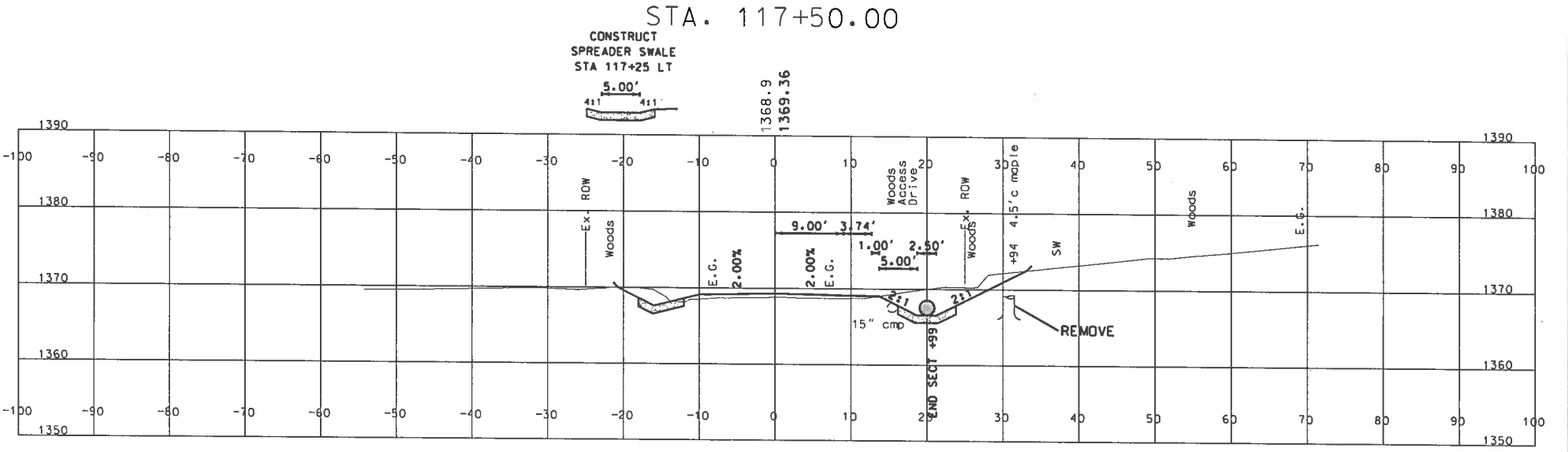
REVISIONS AFTER PROPOSAL

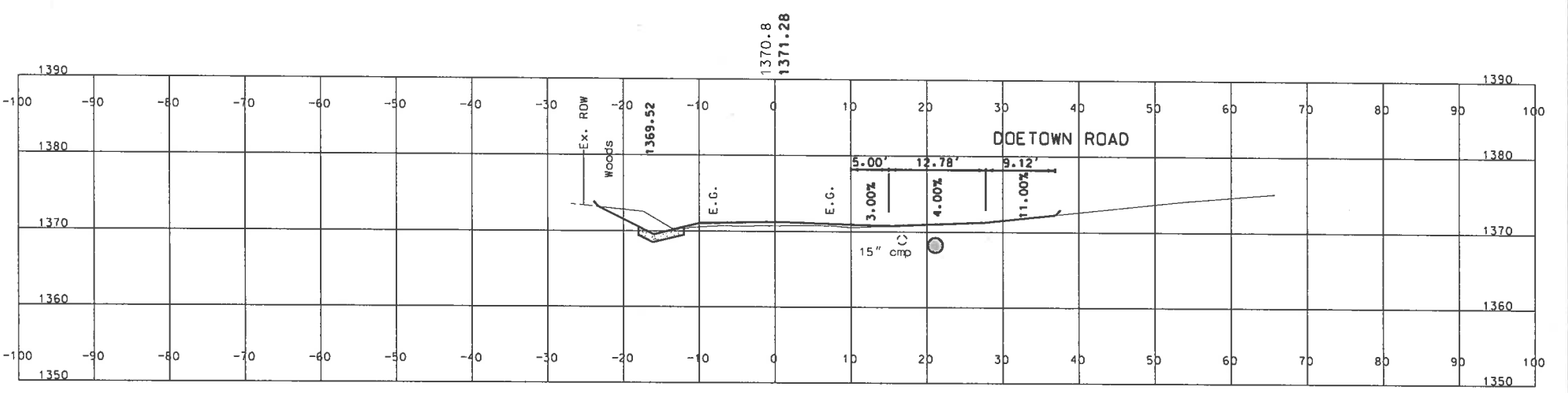
NUMBER	DATE	STATION	STATION	DESCRIPTION



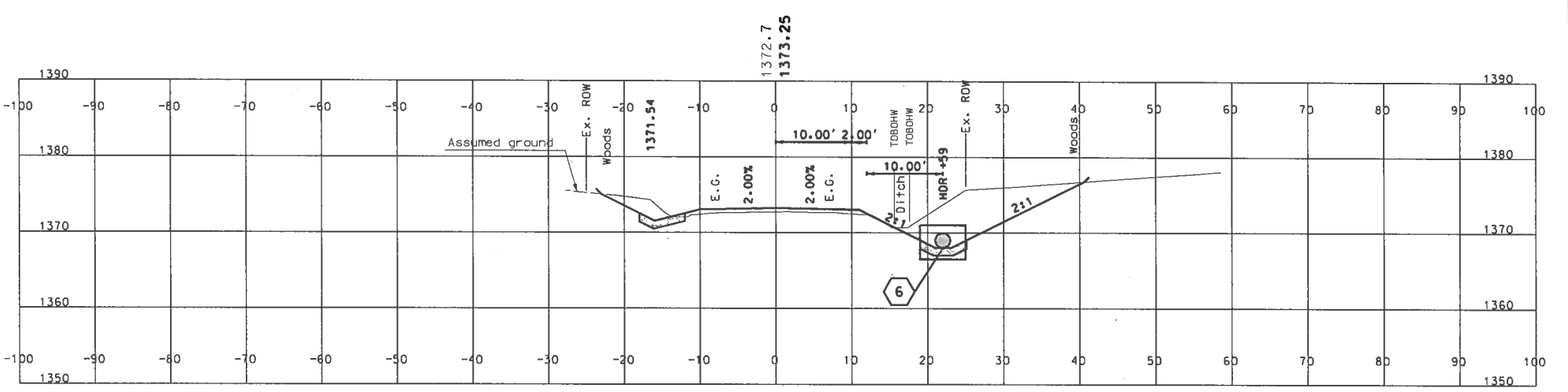
STA. 117+50.00



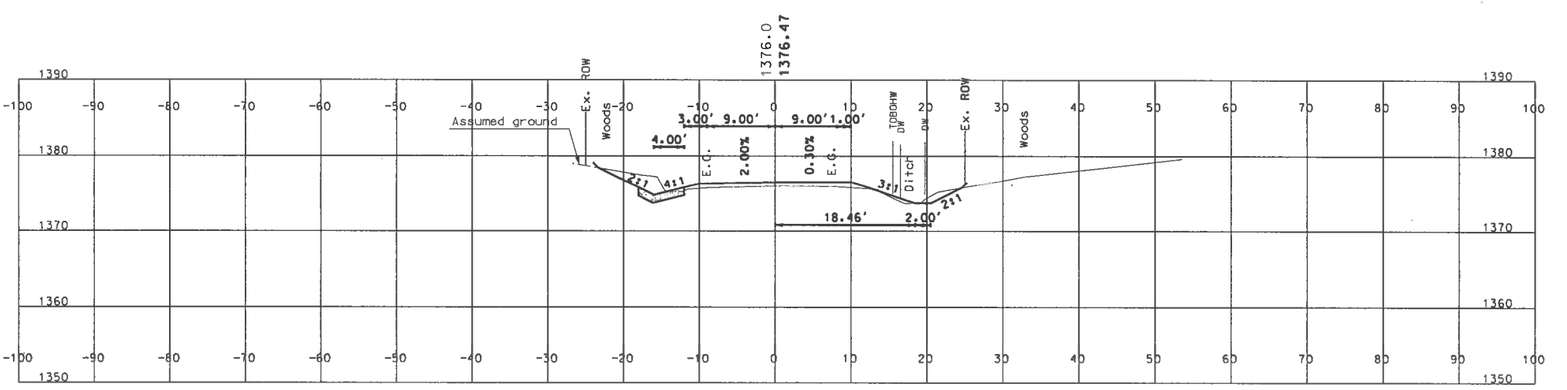
STA. 117+00.00



STA. 116+75.59 (SKEWED)



STA. 116+50.00



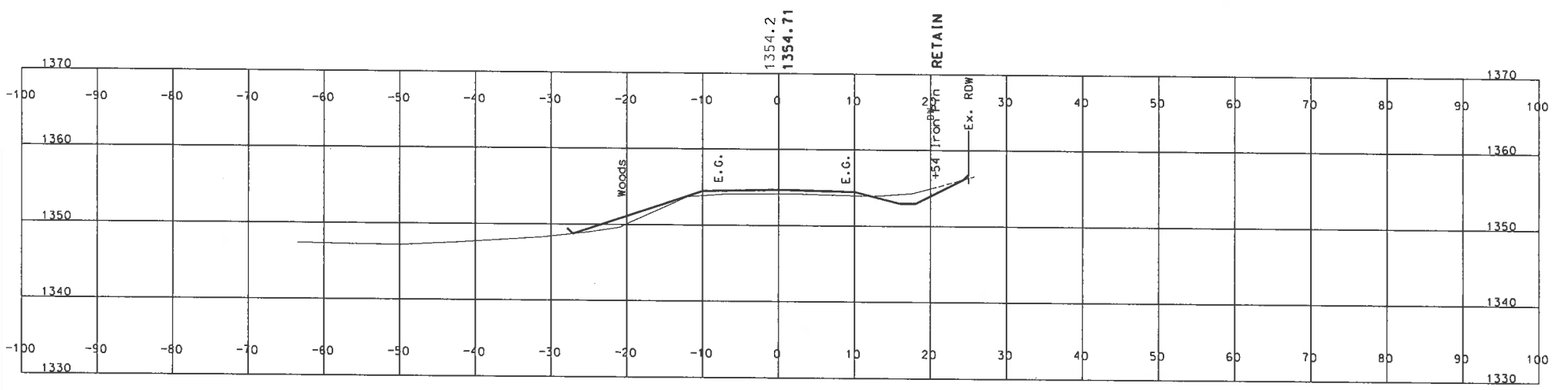
STA. 116+00.00

SHEET TOTALS			
COMMON EXCAV. – C.Y.	ROCK EXCAV. – C.Y.		
FILL – C.Y.	MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	2	4

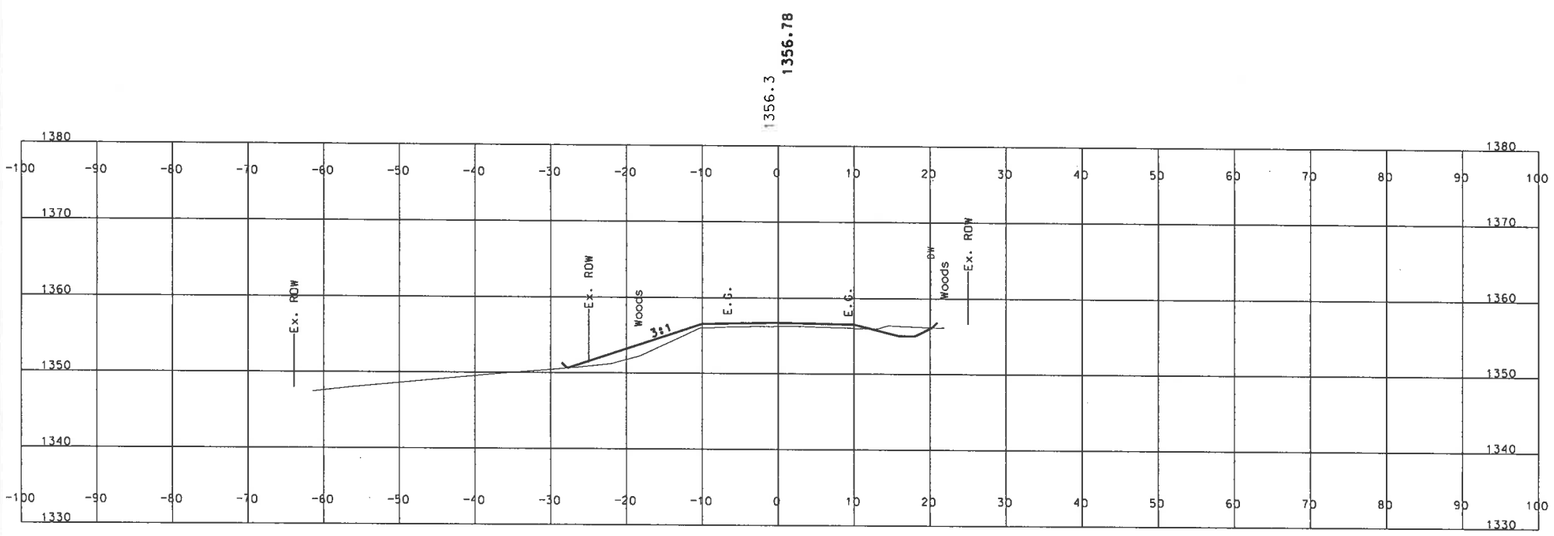
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

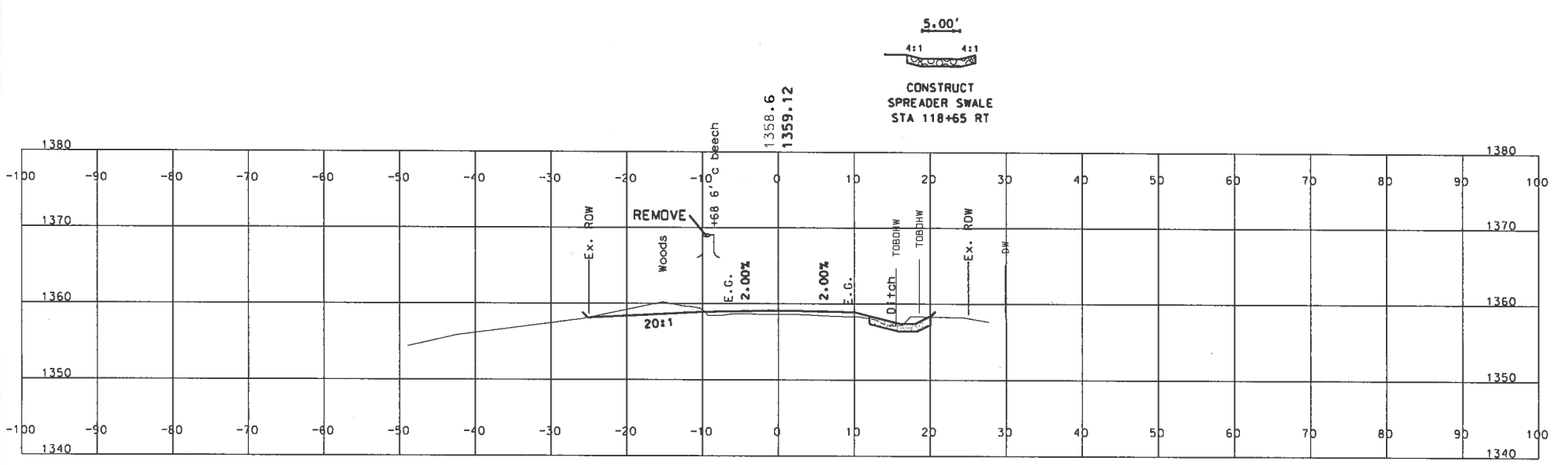
NUMBER	DATE	STATION	STATION	DESCRIPTION



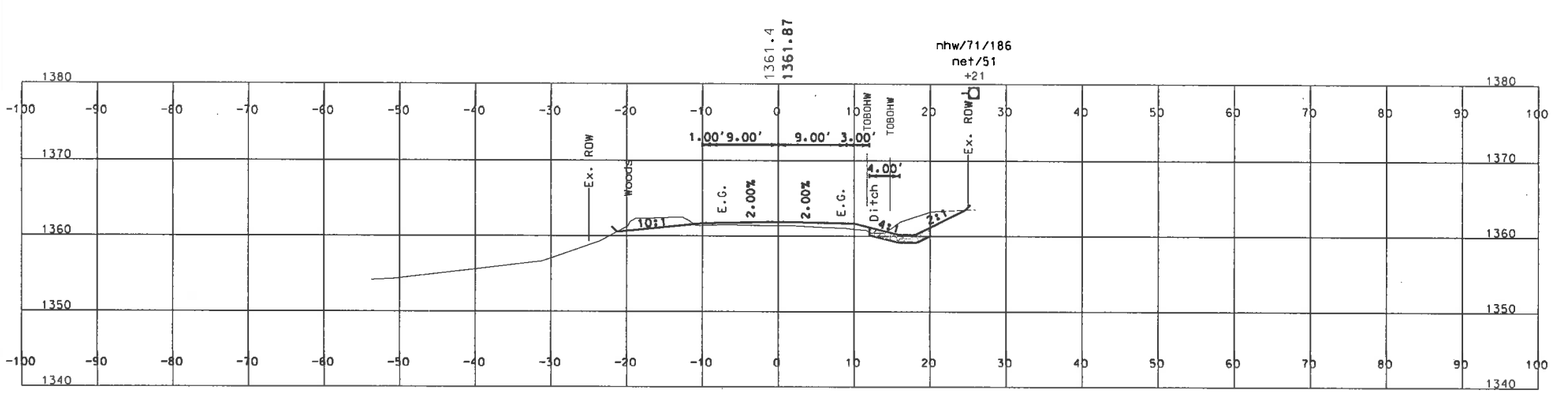
STA. 119+50.00



STA. 119+00.00



STA. 118+50.00



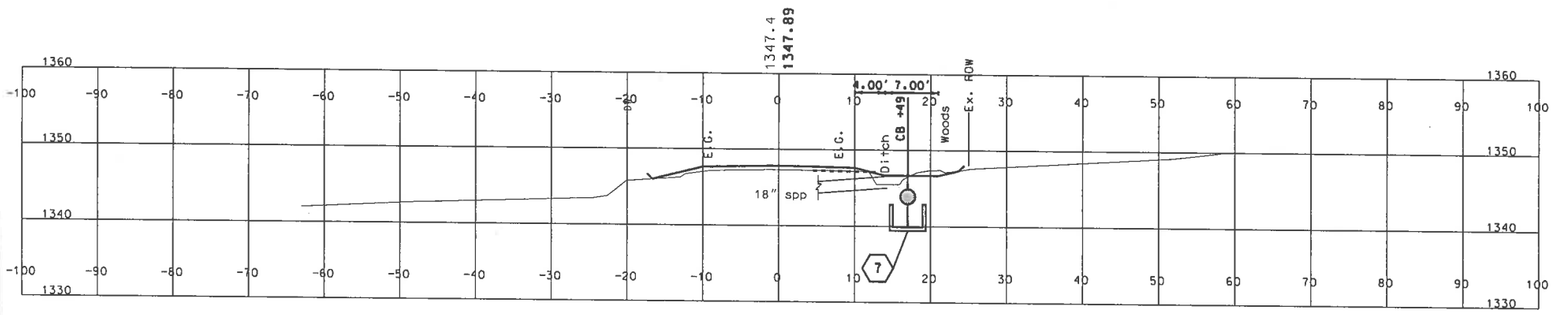
STA. 118+00.00

SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	3	4

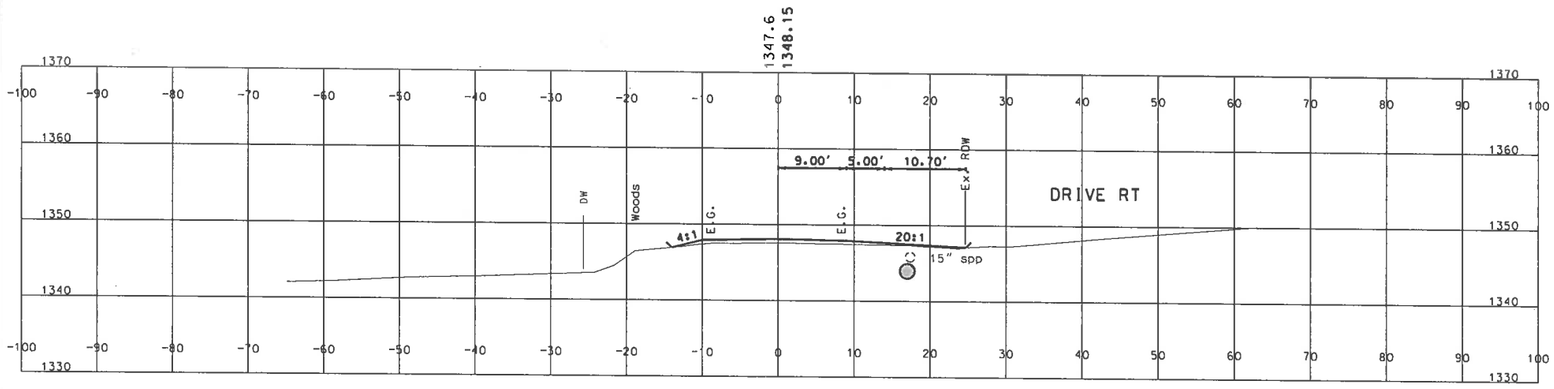
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

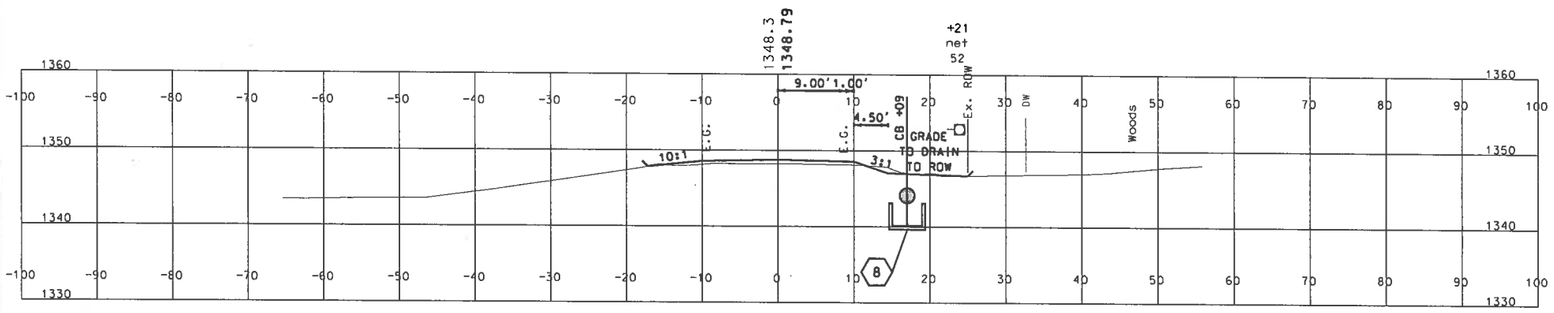
NUMBER	DATE	STATION	STATION	DESCRIPTION



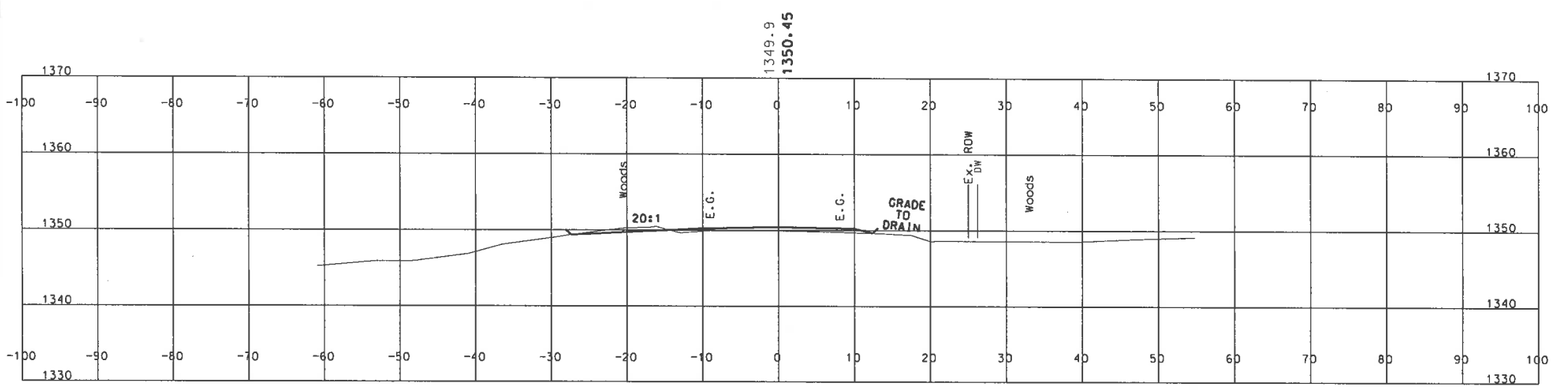
STA. 121+50.00



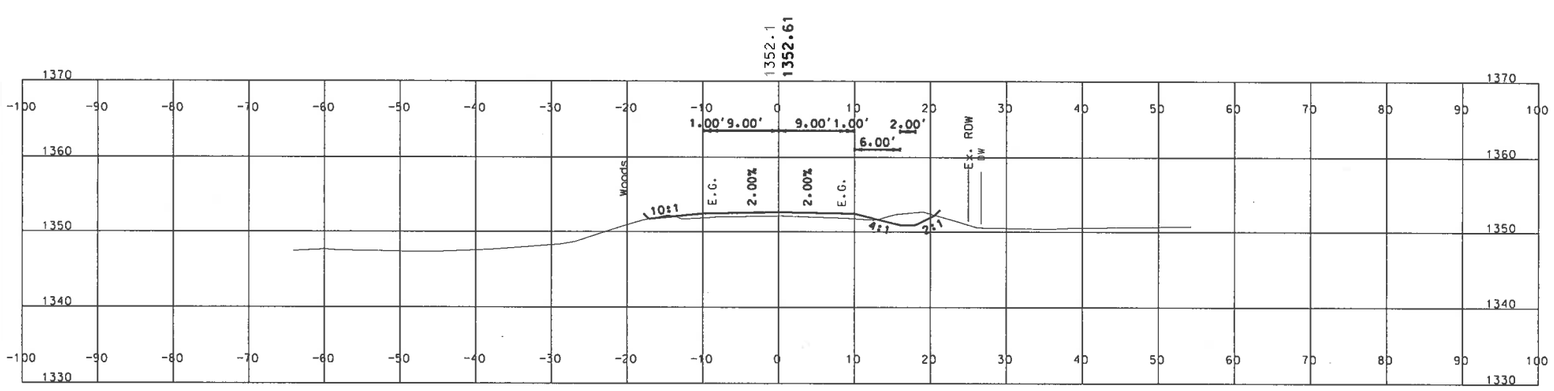
STA. 121+35.00



STA. 121+00.00



STA. 120+50.00



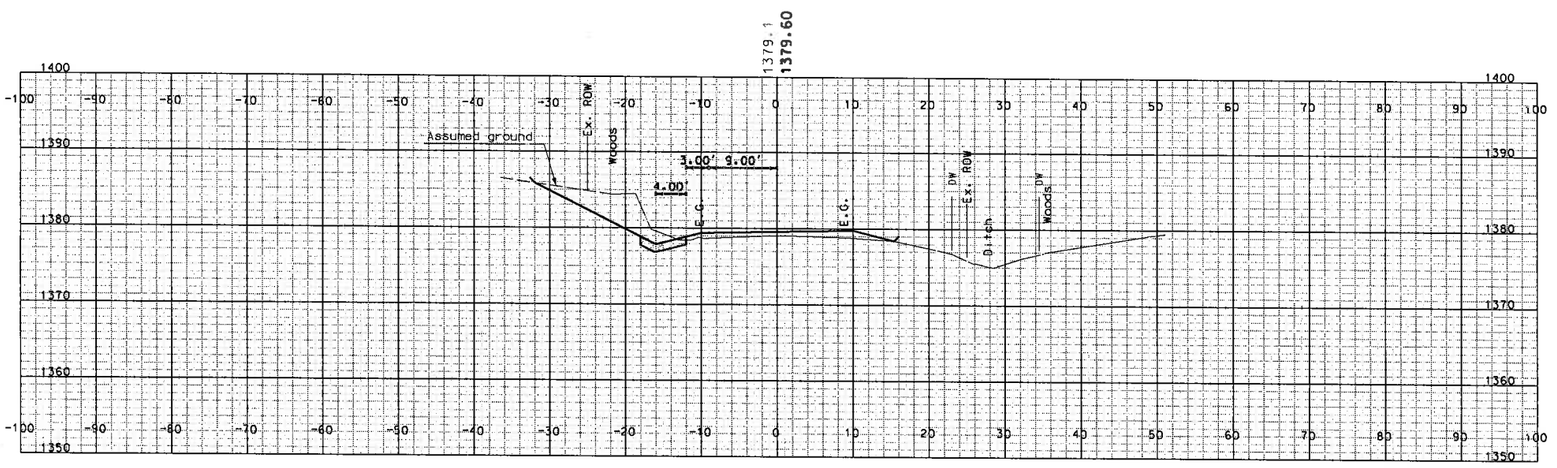
STA. 120+00.00

SHEET TOTALS			
COMMON EXCAV. – C.Y.	ROCK EXCAV. – C.Y.		
FILL – C.Y.	MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	4	4

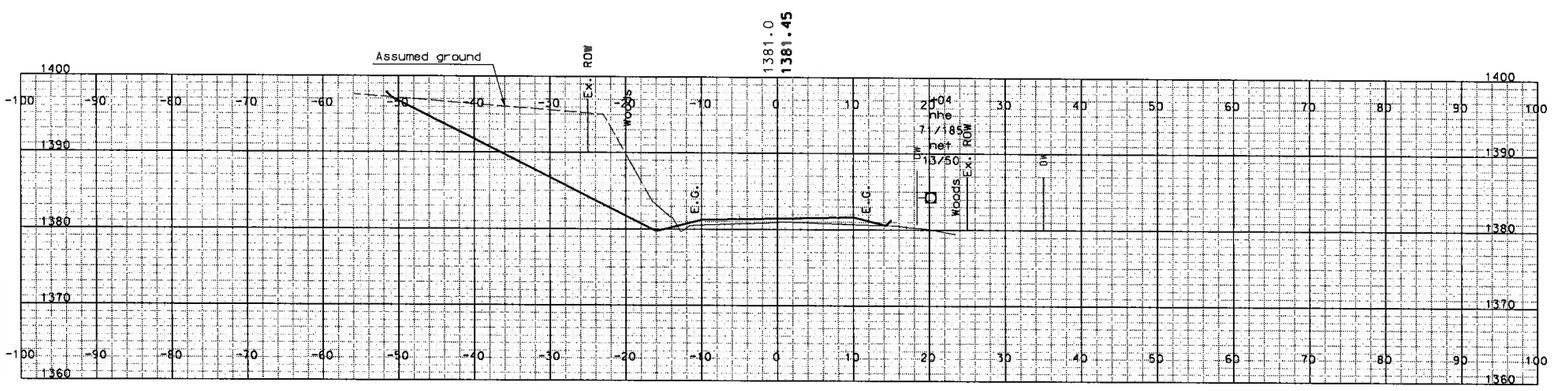
SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

REVISIONS AFTER PROPOSAL

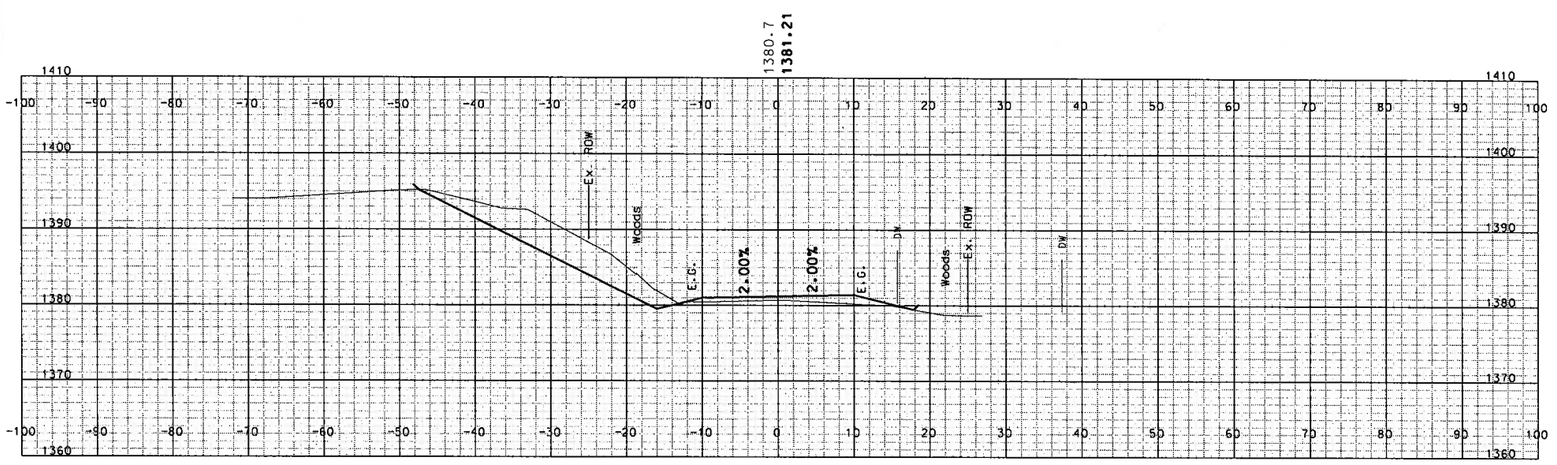
NUMBER	DATE	STATION	STATION	DESCRIPTION



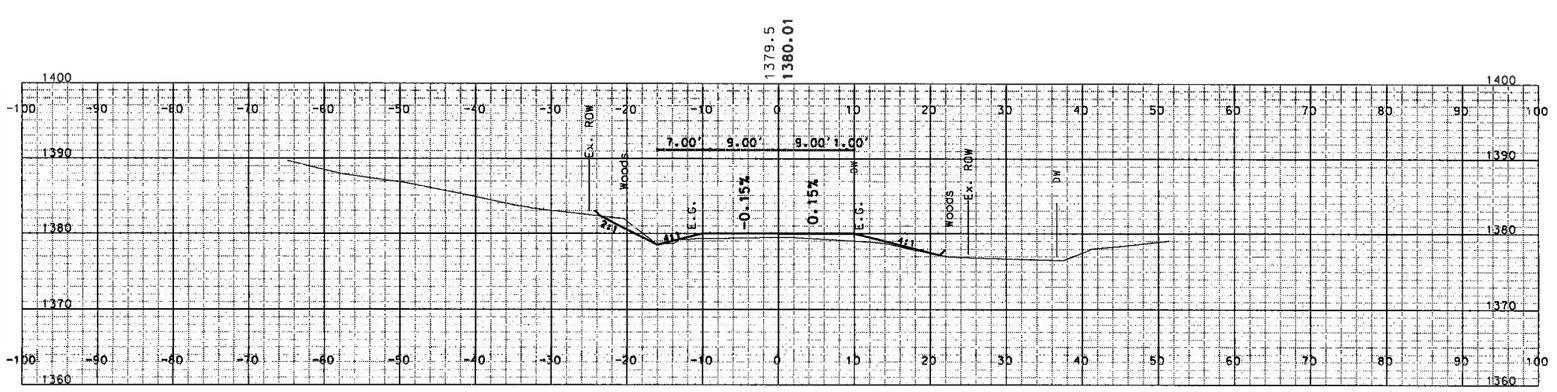
STA. 115+50.00



STA. 115+00.00



STA. 114+50.00

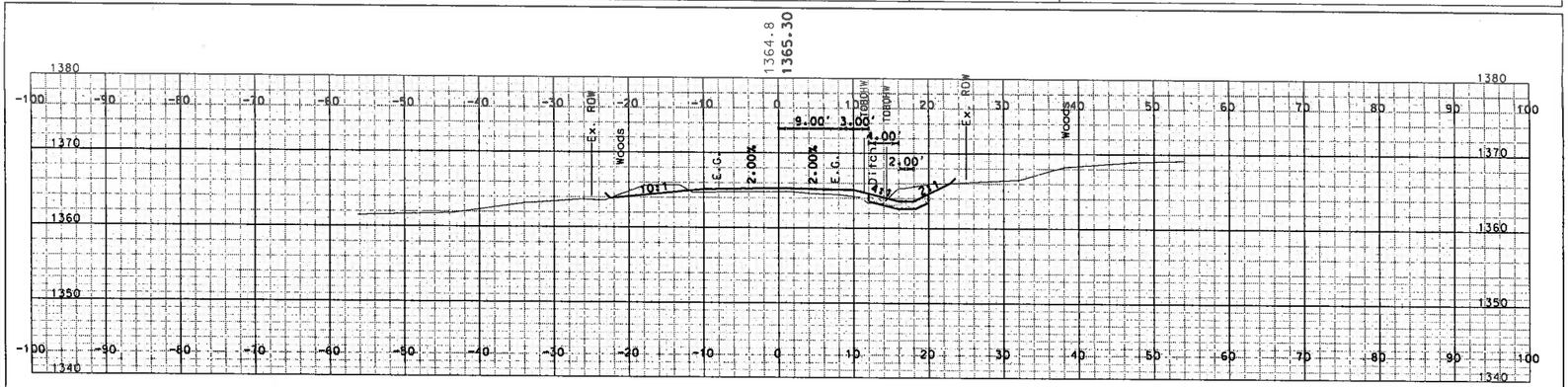


STA. 114+00.00

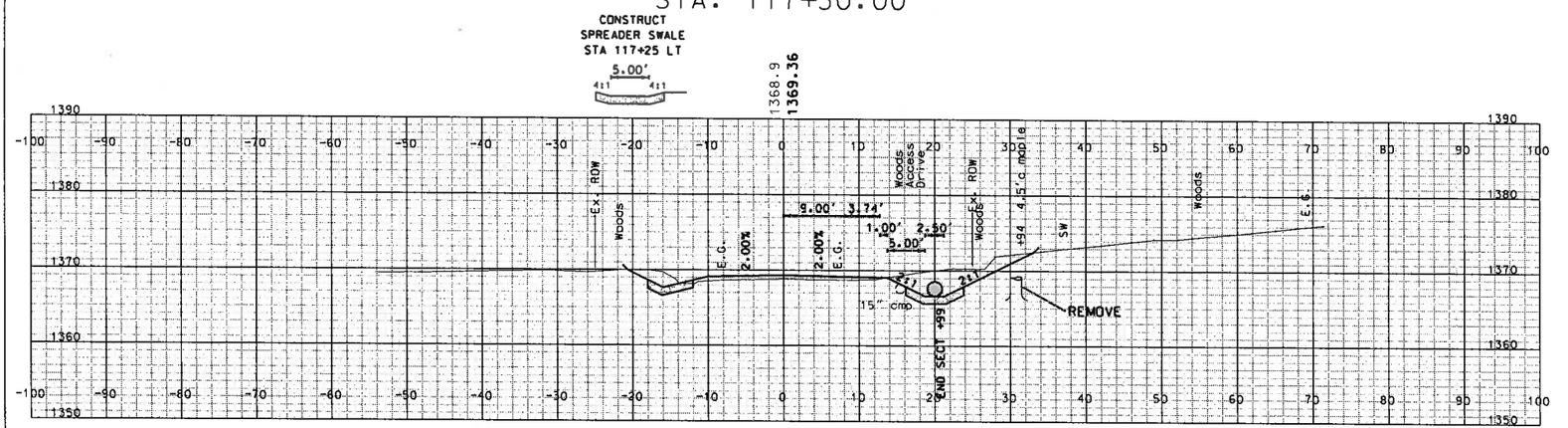
SHEET TOTALS			
COMMON EXCAV. — C.Y.		ROCK EXCAV. — C.Y.	
FILL — C.Y.		MUCK EXCAV. — C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	1	4

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

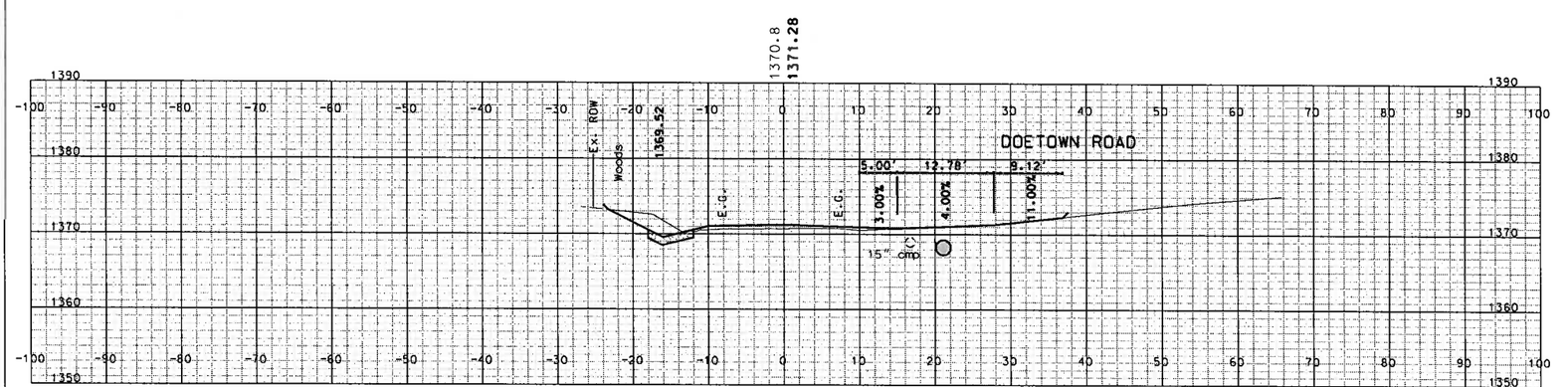
REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION



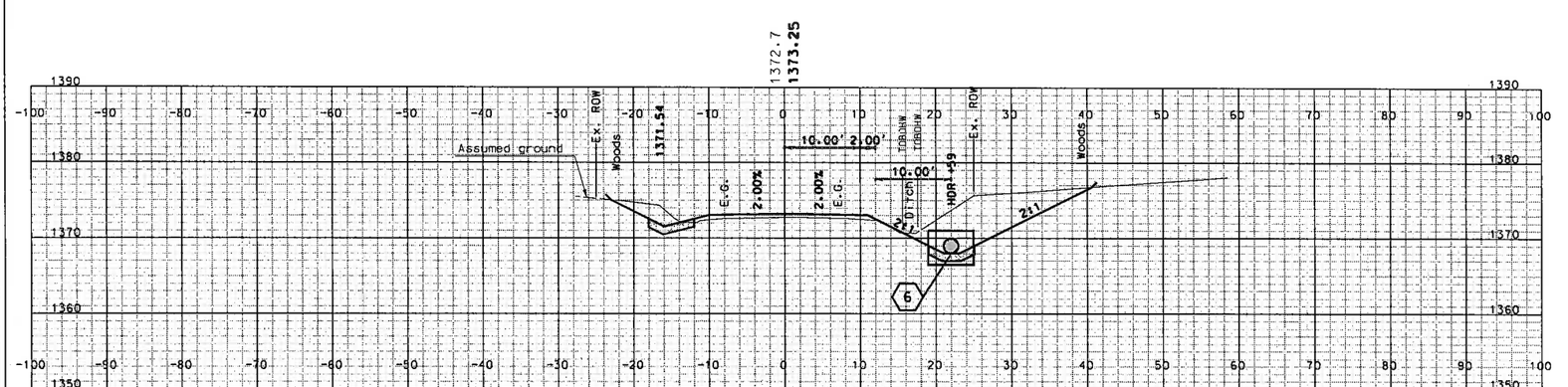
STA. 117+50.00



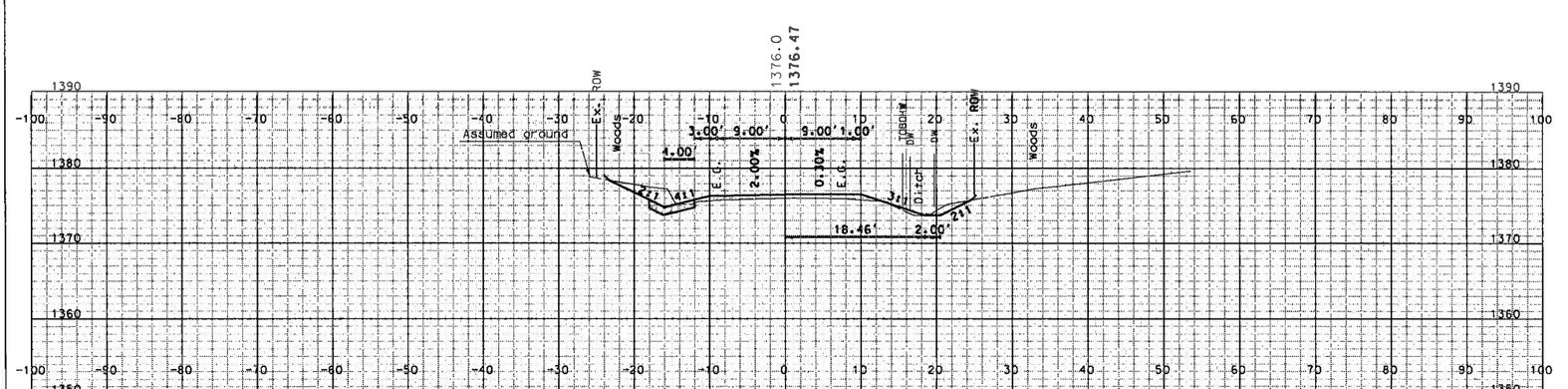
STA. 117+00.00



STA. 116+75.59 (SKEWED)



STA. 116+50.00

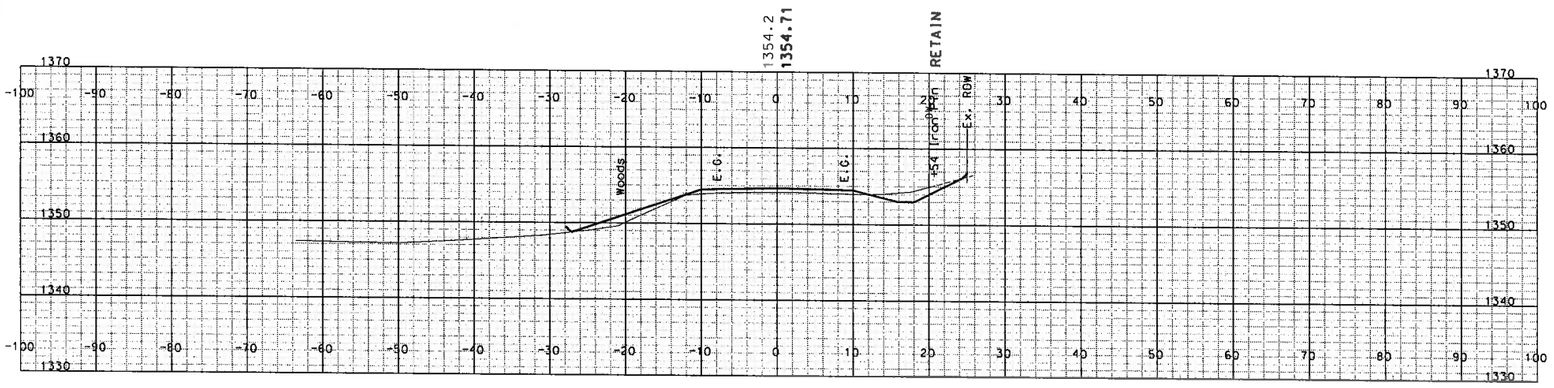


STA. 116+00.00

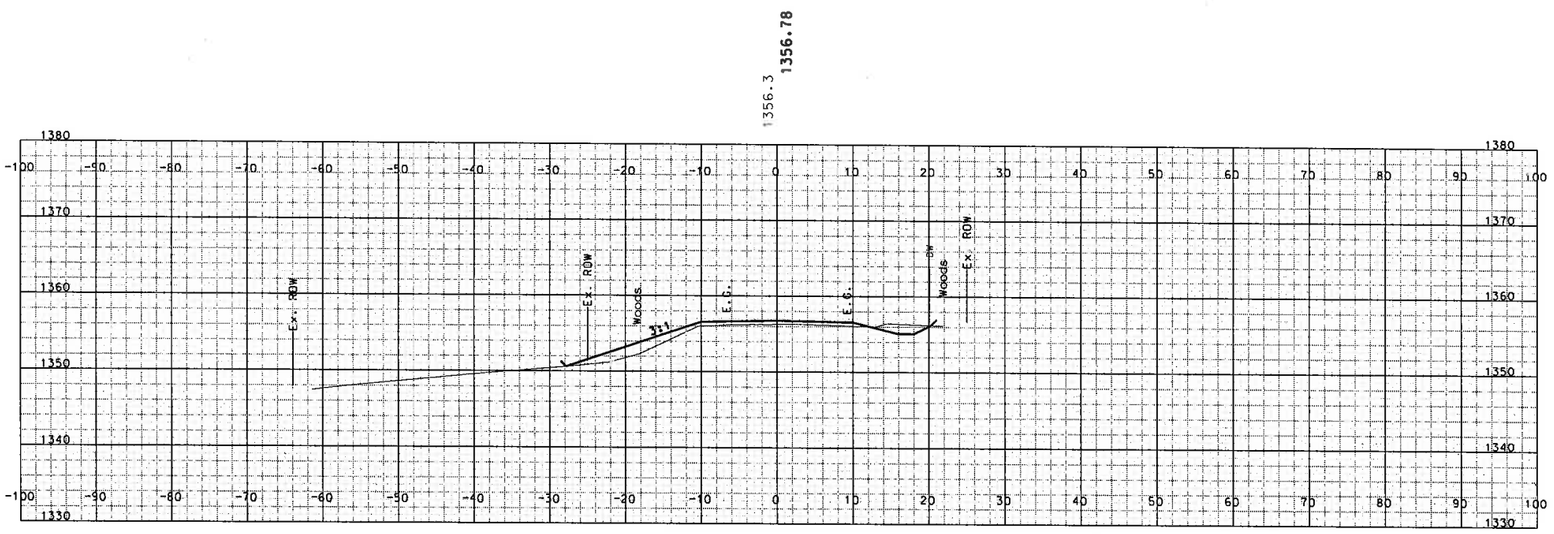
SHEET TOTALS			
COMMON EXCAV. – C.Y.	ROCK EXCAV. – C.Y.		
FILL – C.Y.	MUCK EXCAV. – C.Y.		
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	2	4

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

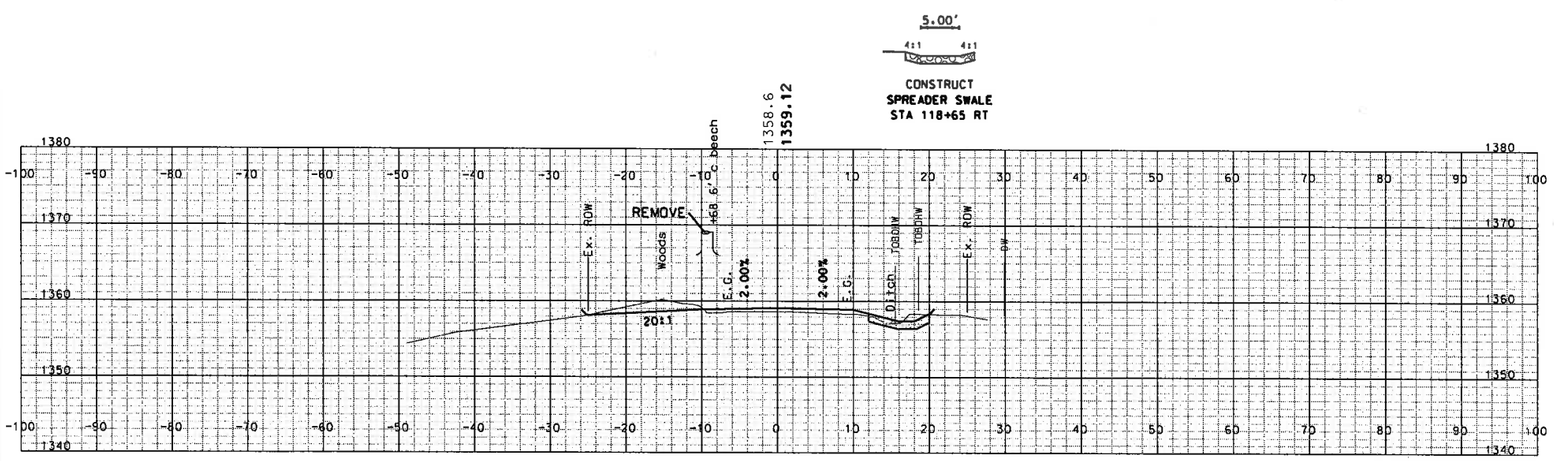
REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION



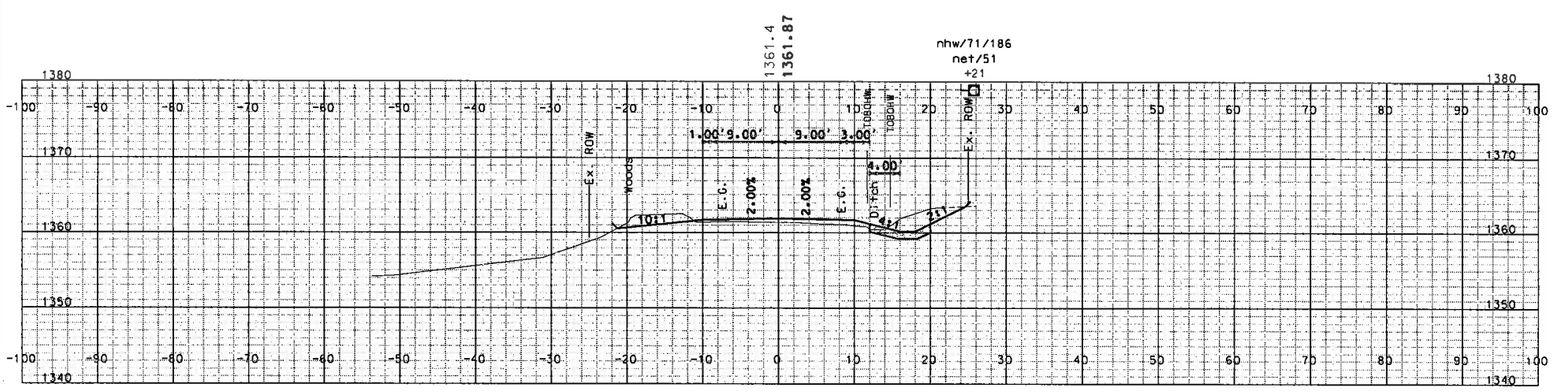
STA. 119+50.00



STA. 119+00.00



STA. 118+50.00

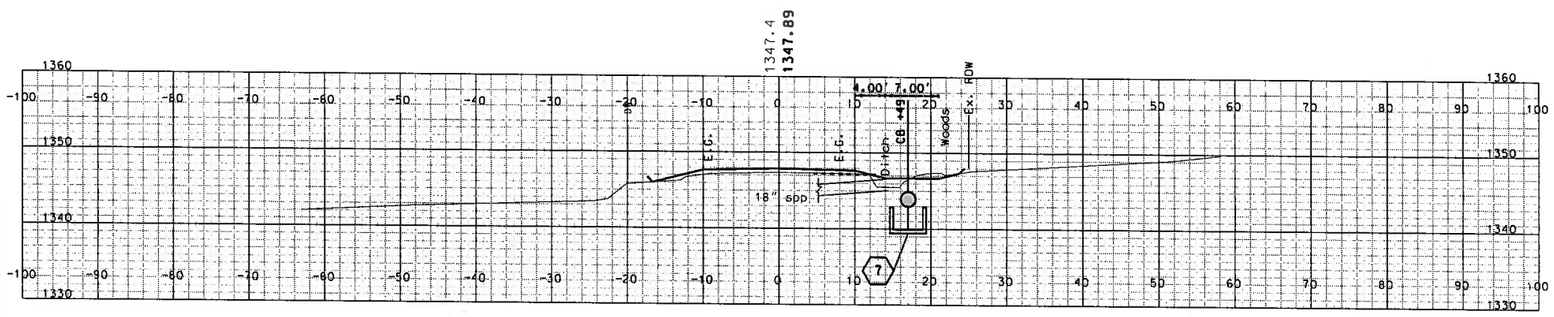


STA. 118+00.00

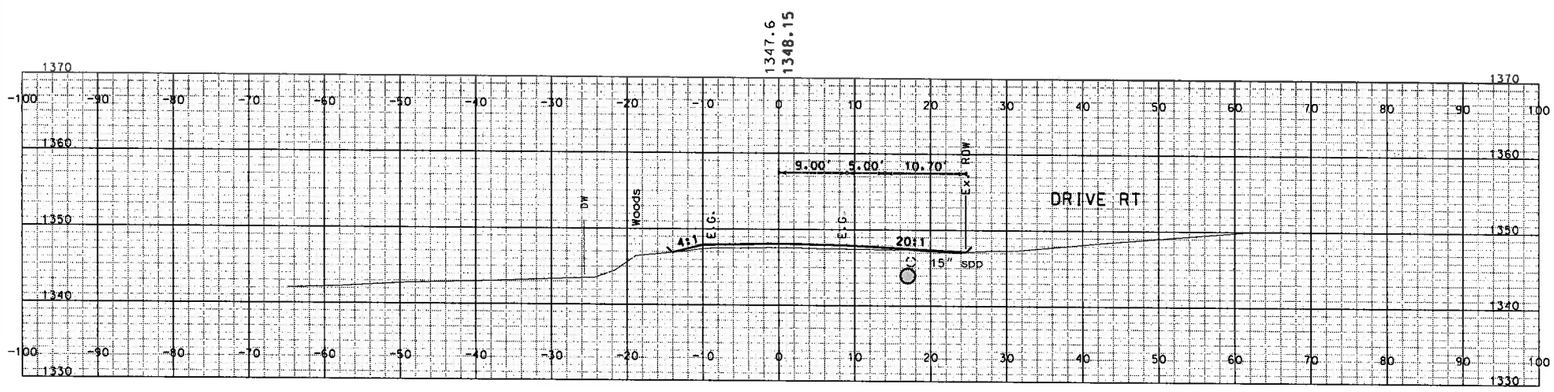
SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	3	4

SDR PROCESSED	NAME1	DATE	DATE1
NEW DESIGN	NAME2	DATE	DATE2
SHEET CHECKED	NAME3	DATE	DATE3
AS BUILT DETAILS		DATE	

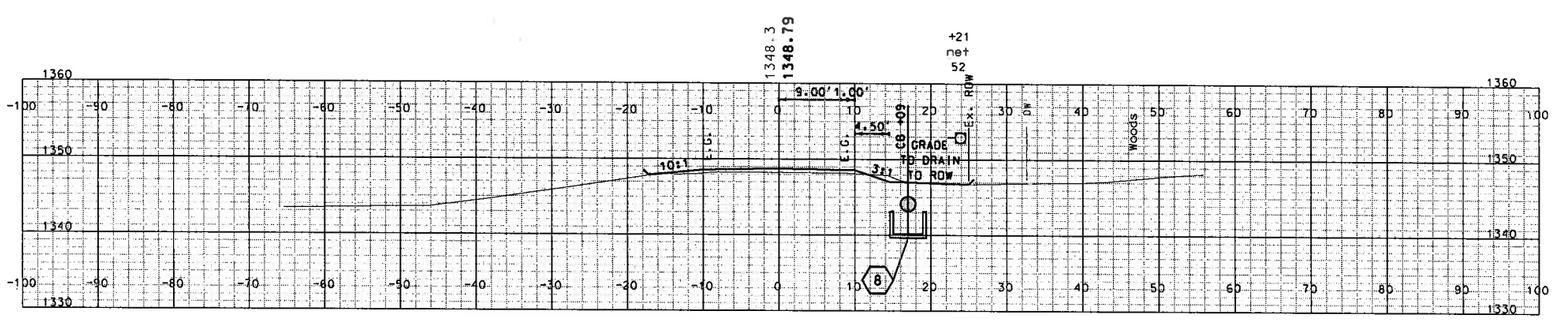
REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION



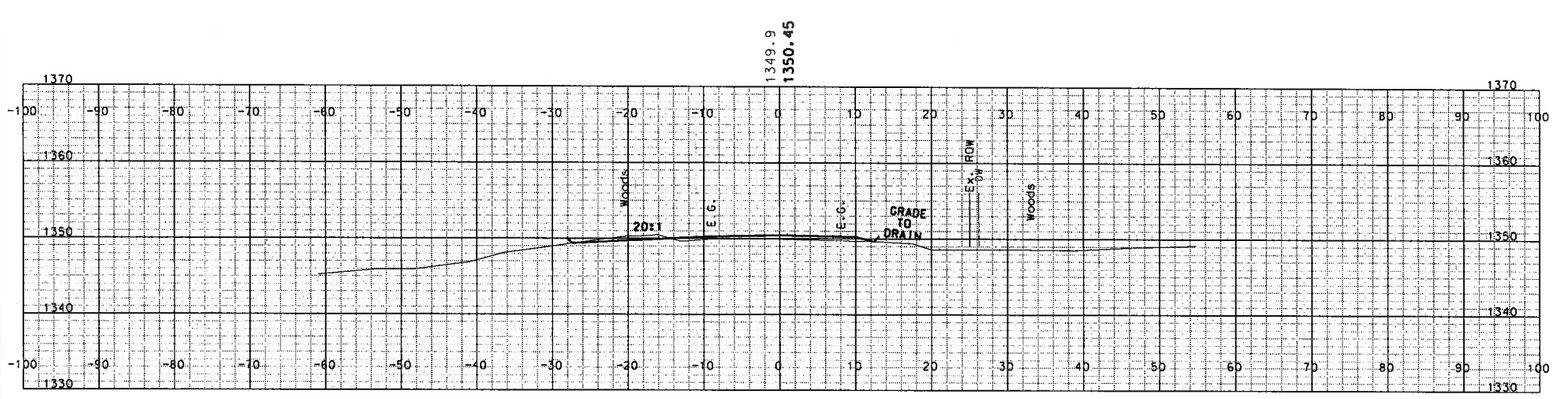
STA. 121+50.00



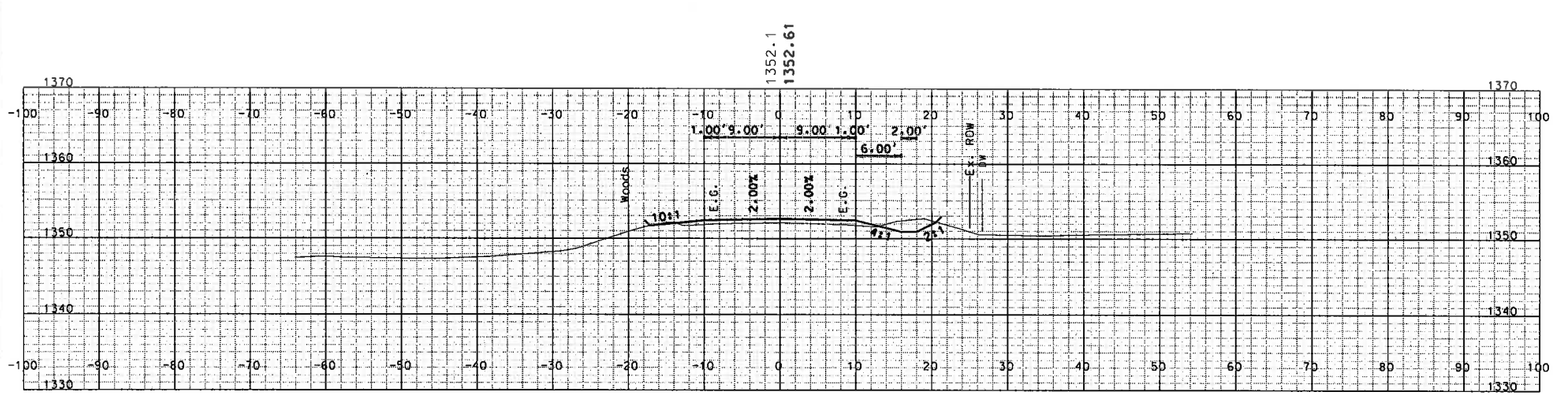
STA. 121+35.00



STA. 121+00.00



STA. 120+50.00



STA. 120+00.00

SHEET TOTALS			
COMMON EXCAV. – C.Y.		ROCK EXCAV. – C.Y.	
FILL – C.Y.		MUCK EXCAV. – C.Y.	
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
40874-xsections	40874	4	4